

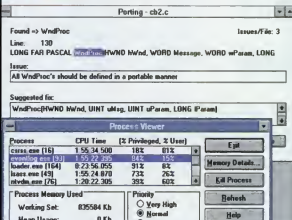
WORLD

JULY 13, 1992

THE VOICE OF PERSONAL COMPUTING IN THE ENTERPRISE

VOLUME 14, ISSUE 28

First Look / Kevin Strehlo



The Windows NT SDK includes tools to help programmers move existing applications to the 32-bit, multitasking OS.

Microsoft makes its move with Windows NT SDK

I have seen the future, and it is called the Windows NT SDK (Software Development Kit). Microsoft apparently learned from the litany of marketing mistakes and product weaknesses that doomed the launch of OS/2. This time it has done the job right.

The core operating system architecture is elegant and powerful. The price is right at \$69.92, \$3.51 less than the original

Microsoft OS/2 2.0 SDKs). More important, the Windows NT SDK running in the Info-World Test Center is solid and has enough of the necessary tools in place for us to expect a sizable base of (dare I say it?) yes) killer 32-bit applications by mid- to late-1993. The killer apps that never emerged for OS/2 will ship soon after the commercial release of NT. [See FIRST LOOK, page 32](#)

Task force readies API to manage LANs

BY TORSTEN BUSSE
AND VANCE MCCARTHY

A high-level industry task force, to be joined shortly by three major systems companies, is adopting a plan to offer a single common agent that will let any

desktop PC be managed directly from any network management protocol.

The Desktop Management Task Force — originally comprising Microsoft Corp., Intel Corp., Novell Inc., SunConnect, and SynOptics Communications Inc. — in the next several weeks expects to make their draft application programming interface (API) specifications available to third-party hardware and software developers, task force officials said. The Task Force is expected to announce the API. [See API, page 31](#)

Novell to ship enhanced router with WAN support

First in series of expected internetworking products

BY KARYL SCOTT

Novell Inc. plans to introduce an enhanced version of the NetWare Multiprotocol Router in August, according to company officials.

The new software package will include support for a number of standard and de facto network protocols. The router will also support wide area connectivity options, said Navindia Jain, vice president of the Novell internetworking product division, in San Jose, California. The August release is expected to be the first in a series of internetworking products designed to make NetWare better suited to enterprise computing environments, according to Dick Boyle, program director with the Stamford, Connecticut-based Gartner Group.

A router is a network-layer device that routes packets of

information between multiple networks and LAN segments by reading the address headers on the packets.

The internetworking market is one of the fastest growing segments of the network industry, according to industry analysts; sales are expected to top \$950 million within the next two years.

The NetWare Multiprotocol Router-Basic, Version 1.0 routes IPX, IP, AppleTalk, and NetBIOS transport protocols. It can only route IPX packets over wide area communications links, but the upcoming release will add wide area network (WAN) support for the other three.

Novell plans to add in the next two years support for DECnet Phases IV and V, Vines, the OSI Connectionless Network Protocol, AppleTalk [See ROUTER, page 91](#)



NetWare MP Router

Novell jumps into the Internet fray. [See page 48](#)



Desktop for DOS

Norton brings Windows-like graphical power to DOS. [See page 62](#)

NetWare router enhancements

Routed protocols

- AppleTalk DDP
- OSI CLNP
- DECnet
- XNS
- Vines

Routing protocols

- RIP
- NLSP
- OSPF
- PPP
- AURP
- IS-IS

WAN interfaces

- X.25
- T-3
- Frame Relay
- SMDS
- ATM

DEC rushes high-end PCs to market

BY GATE CORCORAN

Digital Equipment Corp. appears to have made a major strategic change for its Alpha RISC processor, with plans to introduce Alpha-based high-end PCs early next year when Microsoft ships Windows NT.

While the company has said the chip will scale from palm-tops to mainframes, few expected DEC to target PCs so early. In the past, DEC said only that it would roll out workstations and larger systems at the end of this year, leaving its plans for the low end fuzzy.

The Alpha PC will be price competitive with 486 and P5 systems configured to run Windows NT, said Robert Supnik, [See DEC, page 91](#)

Microsoft lays out enterprise products

Aims to ease big-time downsizing

BY VANCE MCCARTHY
AND STUART J. JOHNSON

Microsoft Corp.'s release last week of the Windows NT developers' kit is the first step in its ambitious plan to release over the next year an array of products to support large-scale downsizing projects.

At the core of Microsoft's enterprise plan are three operating systems: Windows for Workgroups, a 16-bit mail-enabled, peer-to-peer OS; Windows NT, a 32-bit network-enabled OS aimed at power users and server applications; and LAN

Manager for Windows NT, which provides high-end management and administration.

Windows NT 3.1, which it ships late this year, will include shared file and print services, E-mail, and a distributed application facility and remote procedure call services so developers can write applications that interoperate across LANs.

In 1993, Microsoft intends to let users assemble their own workgroups by linking any Windows-compatible applications together. "We're looking at a plug-and-play [See MICROSOFT, page 8](#)



MICROSOFT
WINDOWS NT

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NEWS

Race of the palmtops teams AT&T with Go, Intel with VLSI

BY YVONNE LEE

AT&T Microelectronics and Intel Corp. are forming separate alliances in bids to become the dominant force in the nascent hand-held computer market.

AT&T Microelectronics and Go Corp. plan to announce today at Mobile '92 in Santa Clara, California, an alliance aimed at producing hand-held RISC-based personal digital assistants (PDAs).

Meanwhile, Intel announced last week it would license its Intel 386SL microprocessor core to VLSI Technology Inc. to build integrated chips for palmtop computers that will use pen and voice input. Intel also will purchase a minority stake in VLSI for about \$50 million.

"All the players see this as the next happening of the year," said Dean Hopper, senior vice president of InStat, in Scottsdale, Arizona. "Companies are saying, 'If I can be successful, then I can be like Intel was in the

PC market.'" McCarron estimates that by 1995, hand-held devices will occupy about 10 percent of the PC market.

Both AT&T's chip, code-named Hobbit, and the Intel alliance products will be 3.3-volt processors capable of slowing their clock speed to reduce power consumption.

AT&T and Go will team up to develop and support pen-based systems with built-in communications. AT&T will provide communications chips and augment the infrastructure for communicating with these devices, said analysts briefed on the announcement. Go will port the PenPoint operating system to the Hobbit chip.

The AT&T processor will allow manufacturers to build low-cost, high-performance devices. It will compete against the Acorn RISC machine Apple plans to use in its Newton PDA.

The Hobbit processor will offer performance two to four times that of a 386-based pro-

cessor, according to Michael Slater, editor of *The Microprocessor Report*. It will accept both 16-bit and 32-bit instructions, allowing its software to use less memory than in other RISC processors, he said.

Prototypes of Hobbit-based devices exist now, with actual products expected to ship within six months, sources said.

The Intel-VLSI alliance will produce 386SL processors with other integrated functions, such as communications, fuzzy logic, and digital signal processing.

"Intel and VLSI are going to go to OEMs and say 'What would you like to see on your CPU for a hand-held computer?'" said David Ramey, an Intel spokesman. "Down the road, the goal will be to have everything on one chip, but most likely it will be a two to three chip set for the first products."

The resulting chips are expected in 1993, with products appearing at the end of that year.

AT DEADLINE

Microsoft to develop its apps for Power PC

Microsoft Corp. and Apple Computer Inc. will announce at a joint press conference Wednesday that Microsoft will develop versions of its major applications for Apple's forthcoming system based on IBM's Power PC chip, according to sources briefed on the announcement.

The Redmond, Washington-based company will also demonstrate an update to Works for the Mac, possibly including multimedia capabilities, sources said. Microsoft officials declined to comment.

—InfoWorld staff

Quorum settles lawsuit with Apple

Quorum Software Systems Inc. last week settled its lawsuit seeking relief from Apple Computer Inc.'s claim that its product violates Apple's intellectual property. Quorum sued Apple last May over Apple's assertion that Quorum Latitude, a developer tool that recompiles Macintosh applications to run on Sparc-compatible workstations, violates Apple's intellectual property rights. Terms of the settlement agreement were not disclosed. Following the agreement, Quorum was reinstated in the Apple Certified Developer program. The companies do not maintain any business relations.

—Torsten Busse

Informix readies Wingz 2.0, tools

Informix Software Inc. is developing Wingz Release 2.0, object-oriented fourth-generation language extensions and tools for end-user access to corporate data. Informix briefed customers on the products at last week's Informixworld conference. The company expects to announce the end-user tools, code-named Storm, in November. HyperScript, a programming language bundled with Wingz, will be sold separately. Informix 4GL/GX, which lets developers port character-based applications to various graphical user interfaces, was announced at the conference and released for Motif.

—Scott Mace and Karen Rodriguez

Lotus ready to release Ami Pro 3.0

Lotus Development Corp. will begin shipping Ami Pro 3.0 next week. The word processor will feature FastFormat, an interactive document viewer, SmartMerge, named sets of SmartIcons, and a Clean Screen feature, said Bill Jones, product manager. Ami Pro 3.0 will sell for \$495. Upgrades are \$79 for registered users, \$49 for those who purchased Ami Pro in the last six months, and \$120 for those who switch from a competitive word processor.

—Lafe Low

Compaq rushes to supply ProLinea

Compaq Computer Corp. confirmed last week that it has been unable to keep up with consumer demand for its low-end ProLinea line.

"Sure there's more demand than we can supply now — not just on the ProLinea line, but other Compaq models as well," admitted Robert J. Beach, director of public relations at Compaq.

Compaq has increased its worldwide production from a single shift to three shifts to address the shortfall, according to the company. Compaq expects to meet demand by August, Beach said.

—Ron Copeland

Math coprocessor prices tumble

Intel Corp. and Integrated Information Technology Inc. slashed prices on their math coprocessors last week, following cuts by Cyrix Corp. the week before. Intel's i387 SX and i387 DX now sell for \$99, down from \$189 and \$299, respectively. IIT's 10 chips now list for less than \$100 — except for the 40-MHz 387 chip, which sells for \$129.

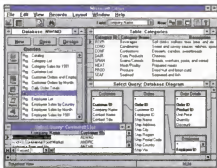
—Cate Corcoran

Developers get beta version of Microsoft RDBMS

Hundreds of beta copies of Cirrus, a relational database management system for Windows, are now in developers' hands, according to sources close to Microsoft.

The current beta version of Cirrus, released in late April, is a single-user copy only. Cirrus will be able to manipulate dBase III and IV and Paradox data in their native file formats. A Microsoft official last week said that Cirrus will not include support for Microsoft's as-yet-announced Open ISAM Connectivity standard in its initial release.

A new beta version, adding features such as Form Wizards and Report Wizards for automating generation and layout of forms and reports, is due later this month.



Visual Basic upgrade to improve speed

BY STUART J. JOHNSTON

SAN FRANCISCO — Microsoft Corp. plans a major upgrade to Visual Basic this year and will ship its Object Basic global control language in the next 12 months.

The upgrade will not add a true compiler, but final programs will run significantly faster than code generated by the current product, especially "in the areas of forms and graphics," said Microsoft chairman Bill Gates.

However, the company will eventually ship a compiler and a

Windows NT-specific version of Visual Basic, he said.

Sources close to Microsoft also said the company will deliver within a year its Object Basic, which will provide global programmability between applications and Windows and will debut initially in Excel.

The goal is to implement Object Basic as the common macro language in all Microsoft applications, Gates said.

Microsoft explained last year that Object Basic will depend on an underlying programmability layer in Object Linking and Embedding 2.0 (OLE 2.0) —

due out late this year or in early 1993 — and will interface with an OLE end-user tool called the Macro Manager. OLE 2.0 will let applications expose their internal programming interfaces so they can be accessed by Macro Manager and other vendors' tools.

Industry observers agreed that portions of the programmability system referred to as Object Basic include a common macro language internal to Microsoft applications and a second component that provides a systemwide Basic programming language.

Editorial / Stewart Alsop

Microsoft's power is scary, but what are you going to do?

Let's face the truth. Except for Microsoft itself, nobody wants Microsoft to be successful with Windows NT. For customers, the prospect is uncomfortable because it is nice to have more than one supplier to choose from. The probable success of NT implies that other operating systems vendors will go away. For vendors, the prospect is downright terrifying because there is a real and growing sense that Microsoft cannot be challenged.

Microsoft is a daunting competitor. In the operating system arena, Novell has decided to defend its networking turf rather than take on Microsoft on the desktop; IBM is still unable to define a credible long-term strategy for OS/2. In applications, Microsoft is gaining the upper hand in spreadsheets and word processing and is a growing threat in database management and consumer software. A picture emerges of an industry in disarray in the face of competition from a giant.

Now Microsoft is implementing a release plan



for Windows NT, which clearly incorporates what customers want to see (as well as a significant amount of vaporware). It's possible to write cross-compatible applications for NT and Windows/DOS (through a specification called Win32s); integrated peer-to-peer networking and messaging; and a special package (called LAN Manager for NT) that is designed for companies that want to use NT as an enterprise platform.

On first blush (see Kevin Strehlo's First Look on page 1) it looks as though Microsoft has done a better than average job on the first release of NT — as operating systems go. Compare it to IBM's release of OS/2, which was rescheduled several times, leaving the impression that the software only barely emerged from testing before being shipped. As a result, many people believe that the system does not deliver on its promise of improving on all of its component pieces (although the core operating system is still well regarded).

All this must be pretty compelling, as nearly all

the workgroup application vendors we have spoken to lately say they are porting their products from OS/2 to Windows NT.

So the question remains: What should we do about Microsoft?

Complaining is not going to solve the problem. An effective solution would include the following steps: Workgroup vendors would have to decide not to develop for NT. Application vendors would have to develop to implement proactive, customer-responsive product strategies. Customers would have to walk away from the aggressive pricing on Microsoft's Office bundle and actively look for operating system alternatives. And Microsoft would have to publish the specification to let other companies make Windows-compatible operating systems.

We're not holding our breath.

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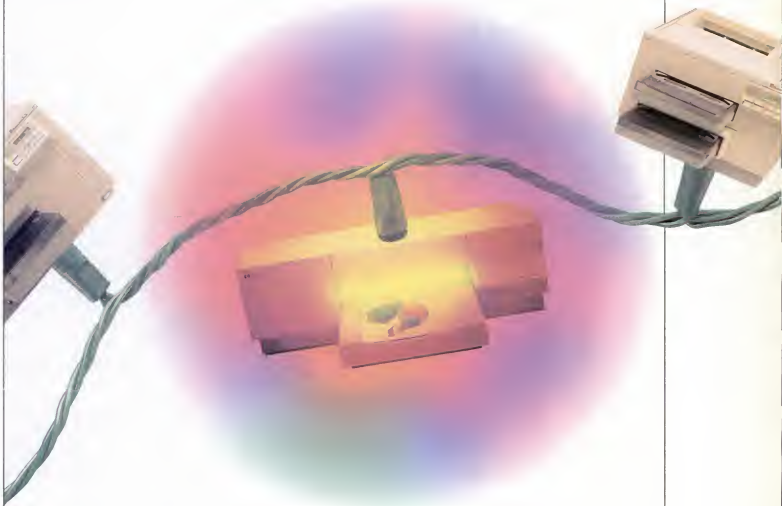
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Microsoft takes Windows on the road to Cairo

Next generation OS will let users integrate data from disparate sources

By Ron Copeland

SAN FRANCISCO — In the midst of all the Windows NT hoopla at last week's Win32 Professional Developers Conference, Microsoft Corp. went public with details of its next generation Windows technology, code-named Cairo.

Microsoft dedicated approximately 140 people to the project over the past year to answer the burning question, "Can Windows continue to evolve?" Its answer was Cairo, an object-oriented operating system slated for release in 1994.

Extending and enhancing what it has done in its Object Linking and Embedding (OLE) specifications, Microsoft wanted

to allow users to transparently access and integrate information from disparate application sources and computing platforms. Doing this, however, requires a new object-oriented model.

"[Microsoft designed Cairo] to enable users to create, use, organize, and find information regardless of what or where it is and to provide a single, consistent model for addressing system- or application-level objects — any kind of information," said Jim Alchin, vice president of advanced systems at Microsoft.

Cairo should enable a user to integrate all kinds of information — graphics, sound, spreadsheet cells, database files,

charts, etc. — into a document without having to worry about where the original data resides, what the data type is, or having to manually update to the most current version of the data, as in OLE 1.0.

Cairo will accomplish this integration by embedding agent technology directly into the operating system to track objects, control the way they move, and make it easier for applications to recognize what they are and how to deal with them, according to Alchin.

This automated assistance approach should also free users from worrying about annoying details such as file names, file formats, and where data is located.

With respect to enterprise-wide systems, one of the principle deficiencies noted in Windows NT is the lack of a distributed security system across network domains. Cairo will address this critical issue in several ways.

A single password will permit access to the enterprise; it will support any number of domains; and it will manage credentials, offer mutual authentication, manage data integrity and privacy services, and allow an administrator to transfer authorization for later use.

Microsoft expects to have a programmer's development kit in the first quarter of 1993, with a shipping version available in 1994.

Microsoft updating DOS for Win32s

By Stuart J. Johnston

SAN FRANCISCO — Microsoft chairman Bill Gates publicly stated last week that the company is working on a major new version of DOS that will support 32-bit multitasking applications.

"As we continue to enhance DOS, more and more of the full Win32 [applications programming interface] set will appear down on the low-end platform," Gates said. "That [includes] a reasonable percentage of those [APIs] that are not [currently in Win32s], like threads," he added.

The company has talked for months about a subset of its 32-bit API for Windows that will run under DOS — called Win32s — allowing a developer to write one program that would run on NT and on Windows for DOS. As originally planned, Win32s would not provide true pre-emptive multitasking services, however.

Sources said in March that Microsoft is planning a DOS version that would run in 32-bit protected mode on 386 and higher processors as long as the system is running Windows. (See "Microsoft reveals 32-bit strategy," March 2, page 1.)

By stating that a new version of DOS will support processing at the thread level — a complex form of multitasking — using Win32s, Gates confirmed the earlier reports, industry observers said.

Apparently this calls for a second, enhanced version of Win32s to provide the extra APIs necessary to take advantage of a 32-bit multitasking DOS.

Gates said he could not predict that DOS "would ever go away."

MICROSOFT / from page 1

Microsoft lays out enterprise products; aims to ease big-time downsizing

play workgroup capability for Windows for Workgroups or Windows NT," said Dwayne Walker, Microsoft's director of marketing for Windows NT and networking products.

LAN Manager for Windows NT 3.1, which includes all Windows NT features, provides extended distributed client/server services for larger networks, including advanced fault tolerance through disk mirroring, duplexing, and RAID-5 striping. It also sports LAN administration utilities, including domains and centralized user account management, for multiprocessor servers. Due to be available when Windows NT ships, it will sell for between \$500 and \$2,000, Microsoft said.

In network management, Microsoft added software distribution to Windows NT, which now includes LAN Manager's SNMP and NetView support. Next year, it will add inventory monitoring (including any Microsoft OS, application software, utilities, and the desktop CPU, disk, and peripherals); software metering; and software assignment.

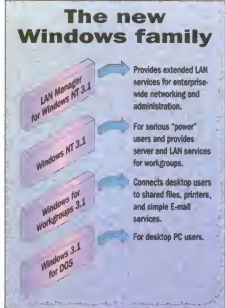
For high-level database needs, Windows NT will support up to 4 gigabytes of

RAM and a terabyte of storage on single or multiprocessor machines. It also comes with a transaction-based file system, which writes to a transferable transaction log to maintain data integrity.

To meet mission-critical needs, Microsoft is working with high-end PC makers, including Compaq Computer Corp., to develop specialized high-availability systems for OLTP users, including banks and airlines, Walker said.

Regarding engines, Microsoft is working on an automatic two-phase commit version of SQL Server optimized for Windows NT, which it plans to put into beta testing this fall. It is also working with Oracle, Sybase, Informix, Information Builders Inc., and Relational Technology Inc. to port their DBMSes to Windows NT using the Open Database Connectivity specification by next year.

For internetworking, Windows NT supports X.400, TCP/IP, Novell Inc.'s IPX/SPX, IBM's SNA, and DECnet from Digital Equipment Corp. Next year it will add support for X.500, OSI, and IBM's Advanced Peer-to-Peer Networking (APPN) protocol, officials said.



Aldus announces multimedia cataloging and retrieval software

By Jeanette Borzo

Aldus Corp. will release later this year a recently acquired multimedia database product that catalogs illustrations, clip-art libraries, sounds, digitized photos, and video clips.

Code-named Fetch, the Macintosh-based software lets users browse, retrieve, and catalog digital media without creating a copy of each file, thereby conserving computer memory.

Thumbnails of files are indexed by being dragged and dropped into the Fetch icon, and the program queries the user for keywords on each file for future

retrieval purposes.

Users can search for files on a variety of criteria, including

keywords, file type, and file name.

Once the files are cataloged, thumbnails or icons (for sounds) appear in a gallery where users can double-click on them to preview graphics or play sounds or movies.

If you want to edit an image, Fetch will bring the image up in the source application," said Aldus public relations manager

Brad Stevens. "It keeps track of where your file is in your system and will get it."

If a file is located off-line, such as on a CD-ROM, Fetch will tell the user where to find it.

Fetch accepts most Macintosh file formats, including PICT, EPS, TIFF, Kodak Photo CD, and QuickTime. Future versions will accept proprietary formats from Aldus PageMaker, Freehand, Persuasion, and other products.

Fetch will be network-ready and will be sold in single-user versions, as well as in packs for 10 and 20 users. More than 100 users can access shared catalogs

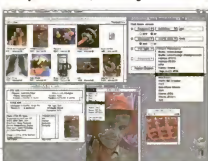
simultaneously.

Aldus would not reveal pricing, however. The company did say it would consider creating a stand-alone product for its Windows customers.

Fetch will begin licensing the technology immediately to other vendors for inclusion in products such as clip art libraries or image import products, such as frame grabbers and scanners.

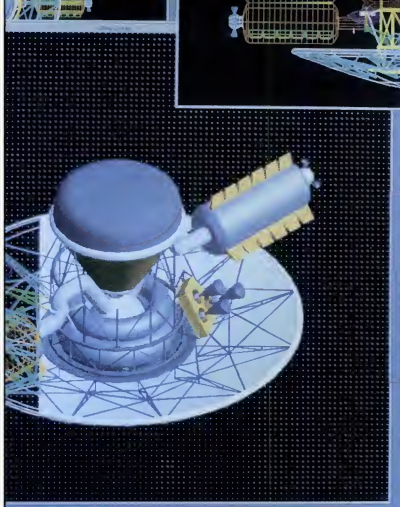
Fetch was developed by Doug Dawns, president of Provident Software Inc. of Anaheim, California.

Aldus is based in Seattle and can be reached at (206) 622-5500.



Fetch lets users catalog multimedia files.

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IBM application makes mainframe problem solving faster, easier

By **TORSTEN BUSSE**

IBM last week introduced an OS/2-based management application that streamlines the problem-solving process between service providers and IBM mainframe users. The Problem Management Bridge/MVS (PMB) uses the problem data records from IBM's Information/Management problem database to electroni-

cally report and transfer data to outside service vendors, such as long-distance carriers or value-added network service providers.

"The key benefit [of PMB] is faster problem resolution, an increase of the availability of system components, and a reduction of administrative costs associated with problem solving," said Bill Buchanan, IBM's development manager

of the PMB.

More than 90 percent of IBM mainframe customers use the Information/Management database, according to Buchanan.

PMB beta tester Mike Morin, supervisor of data center operations for jet engine maker Pratt & Whitney, in East Hartford, Connecticut, said the application has increased the efficiency of the company's

help desk operations, which log around 120,000 trouble tickets per year. Approximately 300 to 500 problem calls a month are dispatched to one of the company's 25 service providers.

"When I call a service provider, they take down the same information that we already have in our database. With the PMB it takes two minutes to transfer the problem data," Morin said.

PMB consists of three components: a base platform installed on a PC or PS/2 with OS/2, which provides the connection to the Information/Management systems; a unique module for connection to each service provider; and more than 100 Information/Management panels that provide a logical and visual representation of systems events, enabling users to customize problem tickets.

Because many Fortune 1000 companies use IBM's Network Service Support Center, the first modules available will provide a link between IBM's Information/Management and the NSS call dispatch center. Additional program modules are required for each service provider.

IBM will make the documentation for module development available to any interested vendor or service provider.

Available September 25, PMB will have a base price of \$15,000. The module to connect to IBM's NSS is an additional \$10,000.

PMB requires a PS/2 Model 70 or greater with 8 megabytes of memory and a 60-megabyte fixed disk; a 3270 connection adapter; a modem; Information/Management, Version 4, Release 2 or later; OS/2 Extended Edition 1.3; and OS/2 2.0 and Extended Services.

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Model	Application	List	New List
Back-UPS 250	LAN nodes, 386SX, 286, internet hardware, POS	\$249	\$139
Back-UPS 400	Desktop 386, 486 systems, 285 servers	\$249	\$229
Back-UPS 450	Tower 386, 486 systems, servers	\$249	\$279
Back-UPS 600	Heavily configured systems, CAD/CAM workstations	\$249	\$399
Back-UPS 900	Multiple systems, longer runtime applications		\$599
Back-UPS 1250	Multiple systems, LAN hubs, small minis, telecom equipment		\$799

NEW
NEW

Artful Applications preparing set of Clipper 5 utilities

Artful Applications Inc. is developing a set of utilities targeted for Clipper 5 application developers.

WinGen is a screen generator that helps developers create an application once they have figured out the appropriate data flow. "You can make changes quickly on the fly without having to recompile," said Peter Brawley, vice president and director of development.

RepGen is a report generator for Clipper applications that supports any number of data tables and relations within a report. Users can include detail records from as many data tables as needed.

The Artful Three application development function library will include a field-level data dictionary, a views manager for setting up database views, a pull-down menu designer, and extensions to the Clipper object classes.

WinGen and RepGen will sell for \$150 each. WinGen is scheduled to ship in August. RepGen will ship this fall. Artful Three, which is also scheduled to ship this fall, will be priced at \$395.

Artful Applications, which is based in Toronto, can be reached at (416) 920-7395.

— Life Low

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NEWS / SOFTWARE

PIPELINE

ANNOUNCED

Alpha unwraps \$199 Report Styler utility

Alpha Software Corp. unwrapped a Windows-based utility that lets users embellish structured reports so that they are more informative as well as visually appealing. Report Styler lets users select and organize information from many different applications into one single presentation-quality document. Available July 31 through the company's network of authorized resellers, Report Styler carries a suggested retail price of \$199. (617) 229-2924.

LaserTools Corp. plans to ship PrimeType for WordPerfect users this summer. The \$129 Type 1 font package gives WordPerfect users faster printing. 20 Adobe fonts, and Adobe Type Manager. (510) 420-8777.

SHIPPED

Central Point offers anti-virus program

Central Point Software Inc.'s Central Point Anti-Virus 1.3 is an improved version of its anti-virus program that identifies and wipes out 1,200 known viruses. A new feature provides protection against viruses generated by the Mutation Engine, perhaps more commonly known as the Dark Avenger Mutation Engine. Version 1.3 carries a suggested retail price of \$129 and is available immediately from the company's network of resellers. Registered users may upgrade for \$20. (503) 690-8090.

Connex-A/I is a binary conversion utility that lets users convert AutoCAD and Intergraph files without using the DXF file translator. CAD Connexion Inc. is shipping the product for \$2,500. (602) 438-0771.

BUNDLES

Traveling Software bundles LinkPack

Traveling Software created a Corporate 10-Pak bundle of its LinkPack Pro communications software. The Corporate 10-Pak sells for \$799, which translates to \$79.90 per user. Single copies of LinkPack Pro sell for \$169.95. The Corporate 10-Pak includes 10 user jackets, five serial cables, five parallel cables, and two complete user guides. Contact "Traveling Software at (206) 483-8088 for more details.

C compiler vendors license 32-bit NT API

Microsoft already shipping early version of its C/C++ compiler

BY STUART J. JOHNSTON

SAN FRANCISCO — Four major C and C++ language compiler vendors announced last week that they have licensed Microsoft's Win32s — a 32-bit subset of Windows NT's applications programming interface (API) — to ship with their compilers.

By early next year, when the final versions of NT and the Win32s libraries are set to ship, developers will be able to write 32-bit programs using any of five different C or C++ compilers that will run on Windows 3.1 for DOS or Windows NT with out modification.

Borland International Inc. demonstrated that capability last week at Microsoft's Win32 Professional Developers Confer-

ence, held here, using preliminary versions of the Win32s libraries.

Watcom, as well as Symantec's Zortech language unit and Digital Equipment Corp., also announced they have licensed the Win32s libraries.

Microsoft began shipping last week an early version of its own 32-bit C/C++ compiler, included as part of the Win32 Software Development Kit (SDK) for Windows NT. The Win32s libraries are not in the current version of the Win32 SDK but will be included in the general beta release version set for September, said Paul Mantz, vice president of Microsoft's systems division. Windows NT is still scheduled to go into final production at

See NT, page 19



Phar Lap lets C++ users break DOS memory barrier

BY ED SCANNELL

Phar Lap Software Inc. announced a customized version of its 286-based DOS-Extender Lite that lets users of Borland's C++ 3.1 create applications that access 2 megabytes of memory.

The Phar Lap product allows applications to break the 640K barrier when running under DOS, Quarterdeck Office Systems Inc.'s Desqview, and Microsoft Corp.'s Windows.

Borland officials said they will bundle, free of charge, the 286 DOS-Extender Lite in every copy of its C++ 3.1 upgrade ordered directly from Borland. "By including Phar Lap in our 3.1 package, we're making multimegabyte programs a possibility for all our developers," said Gene Wang, vice president of Borland's languages business unit.

The 286 DOS-Extender Lite comes with on-disk documentation, several example programs, and access to technical support for installation. Users seeking Turbo Debugger support by accessing 16 megabytes of memory must buy Phar Lap's 286 DOS Extender SDK.

One advantage of 286 DOS-Extender Lite is that it allows users to build large-memory DOS applications with their existing compilers, according to Phar Lap president Richard Smith.

While DOS-Extender Lite is free with every copy of Borland C++ 3.1, the 286 DOS-Extender SDK costs \$495.

Phar Lap has also announced a tool for Microsoft's Windows NT that lets developers use Microsoft's NT tools under DOS.

QuickStart is intended to make the transition to Windows NT easier for DOS developers. Because it is DOS-based, QuickStart developers can run NT tools in concert with their preferred DOS tools. However, debugging must be done solely in the NT environment.

"QuickStart lets programmers build NT applications now without having to wait for their favorite utilities to be ported to NT," Smith said.

QuickStart will be available free from Phar Lap for a limited time.

Phar Lap Software, in Cambridge, Massachusetts, can be reached at (617) 661-1510.

Adobe beefs up its digital video editor

BY JEANETTE BORZO

Adobe Systems Inc. added new professional features to its digital video editing product and will raise the price \$200.

Premiere 2.0 is now entering beta testing; the new version of the Macintosh-based program offers tighter integration with other Adobe graphics products and nearly doubles the special effects and filters.

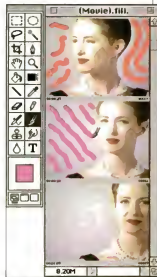
"It looks like Adobe is positioning itself more for the professional market," said Bill Cogshall, president of New Media Research Inc., in Los Altos, California.

The \$695 QuickTime-compatible product, due to ship next quarter, offers high-end users support for Society of Motion Picture and Television Engineers (SMPTE) time code and the option to export edit decision lists (EDLs) through an extensible architecture.

Users can import and export files between Premiere 2.0 and Adobe Photoshop, and a rasterizer for Adobe Illustrator files is included. A motion-control feature lets users fly a moving or still clip along a path while rotating, twisting, zooming, or distorting the clip. A new title generator supports animated titles and Adobe's Multiple Master font technology.

Support for SMPTE time code should save time and money, according to Terry Green, partner at 22product, in San Francisco, and allow him to create rough drafts of productions on the Mac. "We can use it as a surrogate for work that we would do on higher quality videotape," Green said.

"EDL was one of the missing features from Version 1.0," said Todd Rosene, a Premiere user



Premiere 2.0 users can export single frame images to QuickTime movies to Adobe Photoshop.

and partner at TMR Multimedia in Irvine, California. "[With Premiere's new features] I don't need to do a preproduction rough cut at studio. I can do it on my Mac with an EDL."

Digital F/X Inc. of Mountain View, California, will bundle its new Video F/X TapeMaker software with Premiere 2.0, letting users create full-resolution videotapes from their QuickTime movies. The program lets users convert a Premiere movie to an EDL that can be assembled to videotape on Digital F/X's Video F/X system.

Users who purchased Premiere 1.0 after June 1 can upgrade to Version 2.0 for free; others can upgrade for \$149.

Mountain View, California-based Adobe can be contacted at (415) 961-4400.

Free FoxPro 2.5 upgrade offered

FoxPro 2.5, the first version of FoxPro to be released for both DOS and Windows, is now being offered as a free upgrade to purchasers of FoxPro 2.0 for DOS.

The promotion, the opening salvo of Microsoft's war for the XBase market since its acquisition of Fox Software, will run until October 1. Users can choose the DOS or Windows product as the upgrade.

Customers who purchased FoxPro 2.0 before June 1 are eligible for either version of Fox-

Pro 2.5 for \$99 through authorized resellers or Microsoft.

dBase, Paradox, Clipper, dBase, RBase, Superbase, Arago, and CA-dBase users may upgrade to FoxPro 2.0 for DOS for \$199 and are entitled to the free upgrade offer.

Current owners of FoxBase+ or FoxPro 1.x for DOS can upgrade to FoxPro 2.0 from Microsoft for \$175.

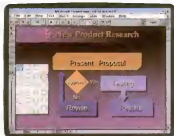
Microsoft Corp. is based in Redmond, Washington, and can be reached at (800) 992-3675.

— Scott Mace

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PowerPoint takes full advantage of new Windows 3.1, and is a part of Microsoft's family of integrated software products for the Windows operating system.

Microsoft
Making it easier

Sheng program compiles any 1-2-3 file

BY LAKE LOW

King Jaguar III, Sheng Labs' compiler for Lotus Development Corp.'s 1-2-3, Release 3.x spreadsheets, will allow developers to compile three-dimensional WK3 files as stand-alone applications.

"Under King Jaguar III, you can take any old [Release 3.x] worksheet and compile it without modification," said Richard Sheng, president of Sheng Labs. Applications compiled with King Jaguar III will support all the WYSIWYG and 3-D features of 1-2-3, Releases 3.0, 3.1, and 3.1+, according to Sheng. King Jaguar III will also feature support for additional memory and an application debugger.

King Jaguar III compiles 1-2-3 3.x formulas and macros for increased performance. "We translate macros into [object file] format so they run faster," Sheng said. Translated macros are hidden from users for improved security.

Compiled applications support expanded, extended, and virtual memory. They will also recognize whether a math co-processor is installed.

Developers may customize their applications by setting up pull-down and pop-up menus, changing colors in various windows, redefining macro function keys,

and restricting user access to certain ranges within a worksheet.

"[Developers] can make a compiled application look totally different from the spreadsheet," Sheng said. "They can make it look much nicer as a stand-alone application."

The debugger lets developers view what is happening while their application

is running, thereby facilitating error detection and correction.

King Jaguar III, scheduled to ship this September, will sell for \$995. Previous King Jaguar users can upgrade for \$395.

Applications compiled with King Jaguar III can be distributed royalty free.

Sheng Labs Inc., in Beaverton, Oregon, can be reached at (503) 646-3691.



Users can customize applications with pull-down and pop-up menus.

At Okidata one good thing



OL400



Firefly makes DOS simpler under Windows

Firefly Software Systems Corp. is shipping a tool that adds a number of features to DOS sessions running under Windows 386 enhanced mode.

Enhanced DOS for Windows (EDOS) adds 17 new "internal" commands to DOS that act as if they were part of DOS' built-in commands, said Michael Maurice, vice president and chief developer at Firefly Software.

These commands can be executed from the DOS session command line or from the EDOS prompt.

The package provides commands to display or print any text contained in the Windows Clipboard directly from the DOS command line.

Other commands let users write batch files to display or modify PIF file settings on the fly. EDOS also lets users set up alarms in DOS sessions that generate and display dialog boxes in Windows.

Additional new commands modify or disable standard DOS commands that should not be run under Windows, including Chkdsk, Assign, Append, Fdisk, Format, Fastopen, Subst, Recover, and Join.

The package also provides capabilities to customize several SYSTEM.INI settings.

EDOS, which works with Windows 3.0 and 3.1, costs \$40. The company is offering an introductory price of \$20 until the end of July, Maurice said.

Firefly Software Systems Corp., located in Gresham, Oregon, can be reached at (800) 248-0809.

— Stuart J. Johnston

In June 1990, Okidata's OL400 personal page printer won a PC Magazine Editors' Choice award. The editors praised its overall performance and value — applauding its graphics and text quality, and its wide selection of built-in type-

faces and fonts. All at the lowest suggested list price of any page printer available.

In November 1991, Okidata's new OL830 Adobe® PostScript® printer won the same coveted award. Once again, the editors praised our printer's overall per-

formance and value. They found it to be the fastest of all 8-ppm printers tested in PCL (HP emulation) graphics mode. And considering its record-setting low price, they rated it "the best inexpensive PCL/PostScript printer available."*

Brown-Wagh updates PC Animate Plus, ships new 3-D tool

By JEANETTE BORZO

Brown-Wagh Publishing released an updated version of PC Animate Plus and a program for three-dimensional painting and animation called 3D Workshop.

New features in the \$199.95 PC Animate Plus 2.0 let DOS users loop any segment for animated sequences and preview the last or next five frames for

synchronized edits. Volume levels can be changed over time or panned between channels, and the program now supports Autodesk Inc.'s FLI and FLC file formats.

3D Workshop, billed as inexpensive and easy to use, incorporates 3-D animations into things like presentations, storyboards, or landscape blueprints.

The \$299.95 DOS-based program ships with 3-D clip art and offers a graphical

interface with pull-down menus. Animations can be saved in such formats as BMP, GIF, PCX RIB, and TIFF.

Bill Allen, beta tester and editor of the newsletter *3D Artist*, in Santa Fe, New Mexico, said 3D Workshop is a good buy for beginners.

"It's going to be very good for everybody who wants to play in the professional 3-D market," Allen said. "You can

learn all the basic concepts with it at a very reasonable price.

"It is easy to use," Allen said. "Without having all the possibilities [of a more full-featured program like Autodesk's 3D Studio], you also don't have all those menus facing you down. There are few choices, so you can't go too wrong."

"They've done it pretty nicely, the way you can position a camera," said 3D Workshop beta user Dave Parker, research and development vice president at 3D Imaging Center, in Sandy, Utah.

"You have these little icons so you can see where the camera is positioned and what its target is," Parker said. "It also has the ability to put the camera inside objects. That's really nice if you want to fly through a cluster of buildings."

Brown-Wagh, in Los Gatos, California, can be reached at (408) 378-3838.

leads to another.



OL830



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NT / from page 18

C compiler vendors license 32-bit API

year end.

Under the terms of the last week's agreement, the language vendors will ship the Win32s API subset libraries with their compilers.

Between them, Borland and Microsoft own the lion's share of the C and C++ language markets, although many developers still prefer to use compilers by Watcom and Zortech.

"Microsoft has really done a good job in making it easy to move from 16-bit applications to 32-bit," said Gene Wang, vice president of Borland languages.

Borland also announced that it has licensed the debug kernel for Windows 3.1 and will probably sell it separately to developers who need it. Due to its design, Windows NT does not require a debug kernel for advanced debugging.

Microsoft's 32-bit C/C++ compiler supports code generation and debugging for both Intel and MIPS processors. However, actual code must be done on an Intel machine, McCarthy said. Borland currently has no plans to support MIPS, Wang said.

1stDesk delivers DataPalette

1stDesk Systems Inc. is shipping its DataPalette forms processing and data management package for the Macintosh.

DataPalette is a forms processing and data access package, rather than a forms design package. Users actually create a form using any other graphics or drawing package.

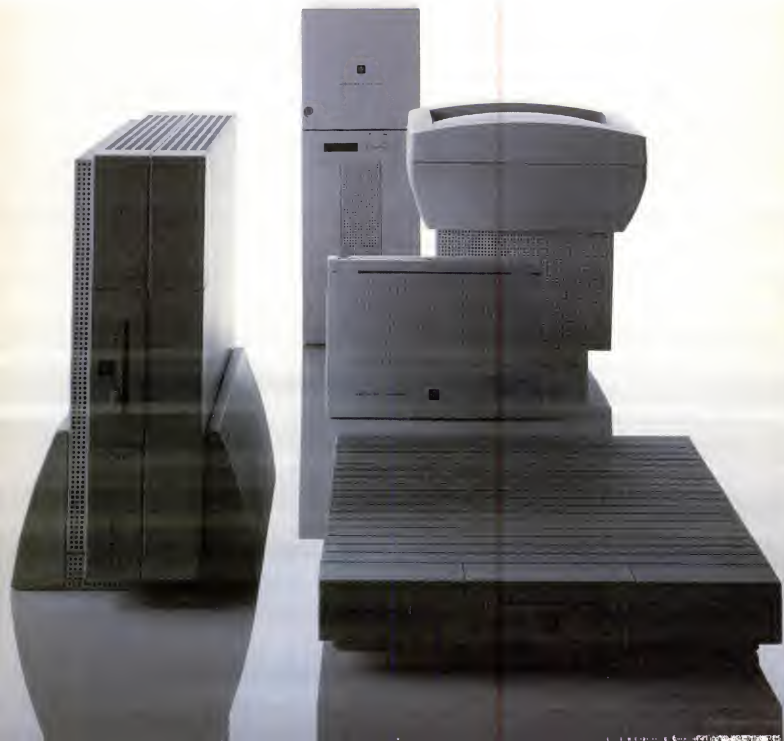
DataPalette has a fuzzy search feature that searches for a word or file. Once a user enters the fuzzy search criteria, DataPalette will return the best 32 records with an occurrence of the specified data.

DataPalette is shipping now and sells for \$399 direct from 1stDesk Systems. 1stDesk is located in Medway, Massachusetts, and can be reached at (508) 533-2203.

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A Bull Company

Thinking Ahead

Users praise Excel for Mac's toolbars, Autofill

BY LAFE LOW

The latest incarnation of Microsoft Corp.'s Excel for the Macintosh has impressed users thus far with its customization features and ease of use.

"[Version] 3.0 was not that much of an improvement over 2.2," said Jim Cunningham, systems analyst at US West

Marketing Resources, in Englewood, Colorado. "But 4.0 is a huge jump in terms of usability."

Users are most impressed with the enhancements to the toolbars. Microsoft added new standard toolbars to Excel 4.0 and now lets users create customized toolbars.

Cunningham said he appreciates the

convenience and speed of customizing the toolbar sets.

"The number of them, the flexibility of them, and the fact that you can rearrange them on the fly" are some of the aspects of the toolbars that please Cunningham. "I've rearranged all my toolbars so they fit the way I work," he added.

"I'm still getting used to the fact that some commands have shifted to different toolbars," said Lee Adler, vice president of sales at Personal Computer Resources Inc., in Hanover, Massachusetts. "It just has to fine tune the toolbars a bit. That's one of the nice things that 4.0 allows you to do," Adler said.

Excel 4.0 also allows users to have multiple toolbars on-screen. "It gives you a good reason to have a large monitor, so you can display them all at once," Adler said.

With Excel 4.0's Autofill feature, users specify the beginning label of a series, and Excel automatically fills it out. For instance, a user could enter "January" at the head of a column, select that column, then select Autofill, and Excel would fill in the rest of the months.

One drawback Excel users have found is the amount of memory required for Version 4.0. The Macintosh version requires at least 1 megabyte of RAM with System 6.0.2 or later, or at least 2 megabytes of RAM with System 7.0 or MultiFinder.

Act contact manager now on Windows

BY LAFE LOW

Contact Software International has brought its Act contact management package to the Windows environment, linking its features to other Windows applications and including the latest enhancements from other versions of Act.

"If you take the Act feature request list, we have 85 percent of the features [in the first Windows release]," said product marketing manager Chris Miller.

Act for Windows uses dBase-compatible file structures in its contact, activity, note, and history data files for greater portability. It also features predefined Dynamic Data Exchange (DDE) links to Microsoft Word for Windows and WordPerfect for Windows.

Users can prioritize events such as sales calls, meetings, and to-do items. In Calendar mode, users can display and print schedules in WYSIWYG day, week, or month views. Users can reschedule events with drag-and-drop editing.

"The Expenses module did not make it into the Windows version, and we elected not to build faxing capability into the first Windows release," Miller said. These capabilities will appear in a future release, according to Miller.

Act for Windows supports DDE links but not Object Linking and Embedding, which will likely appear in the next Windows release, Miller said. Act for Windows supports Windows 3.0 and 3.1.

Act for Windows is shipping now and sells for \$495. Registered users of Act 2.1 can upgrade for \$99. Users of Act, Versions 1.1 through 2.0 can upgrade for \$149. Users of the entry-level FirstAct can upgrade for \$199.

Contact Software, in Carrollton, Texas, can be reached at (214) 919-9500.

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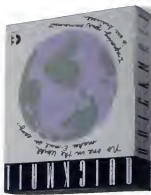
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CE SOFTWARE

Baler prepares simple entry-level spreadsheet compiler

BY LAFELOW

Baler Software Corp. will soon deliver an entry-level version of its spreadsheet compiler that has a simplified macro language.

"We've always made the assumption that everyone uses a spreadsheet," said Baler vice president Tom Priestley. "We're not making that assumption anymore." The documentation for Baler Express has been rewritten for newcomers to spreadsheets and for spreadsheet

compiler users.

Baler Express features the same workbench as the more advanced versions, Priestley said, and the workbench gives users menu-driven access to the application development tools. "The workbench is the same," Priestley said. "The difference is in the documentation. The new entry-level manual is truly entry level."

While the Express version has some of the advanced macros taken out, it includes 19 new macro commands to enhance security and customization in

compiled worksheets for users less familiar with spreadsheets.

"Not everybody needs advanced macros," Priestley said. "[Everybody] needs to immediately be able to use the product."

Baler Express, like the others in Baler's line of compilers, works with WK1 files, making it compatible with Lotus Development Corp.'s 1-2-3, Borland International Inc.'s Quattro Pro, and Microsoft Corp.'s Excel. Baler Express will also support the macro language in 1-2-3,

Release 2.2 and most of the macro language in 1-2-3, Release 2.4 and 3.1.

Baler Express is expected to ship this month for \$295. For the first 60 days of its availability, Baler Express will have an introductory price of \$149.

Baler is also developing versions of its compilers for Windows-based spreadsheets. Company officials declined to comment on availability date or pricing. Baler Software is located in Rolling Meadows, Illinois, and can be reached at (708) 506-9700.

ProtoGen supports Windows 3.1, NT

ProtoView Development Corp. will ship a major upgrade to its ProtoGen Windows interface code generator this month that adds support for Windows 3.1 and Windows NT, a company official said.

ProtoGen 3.0 also will now let developers choose to generate several C and C++ dialects as well as Pascal code from the same screen design, said Dean Guida, ProtoView president.

The package can generate ANSI C and Zortech C, as well as both C and C++ code for Microsoft C/C++ and the Microsoft C++ Foundation Classes. Borland C++ and the Object Windows library are also supported, as is Borland Turbo Pascal for Windows, Guida said.

"You get all the code generators [in a single package]," Guida said.

Support for the new Windows 32-bit applications programming interface is included, he added.

ProtoGen 3.0 will cost \$199, but the company is offering an introductory price of \$99 through the end of September. Registered users of earlier versions of ProtoGen can upgrade for \$49.95.

The company has also lowered the price on its ProtoView screen management facility toolkit from \$695 to \$395.

ProtoView Development, in Dayton, New Jersey, can be reached at (908) 329-8588.

— Stuart J. Johnston

HELPDESK Windows 3.1

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Problem: I keep getting "out of memory" messages, even though when I select Help, About Program Manager, I see plenty of free memory available.

Solution: (Corporate Software) In Windows 3.1, system resources consist of two 64K size buffers, USER.EXE and GDI.EXE. They are used by the system for windows, menu bars, user input, and graphical images such as circles, ellipses, etc. If either of these buffers runs low, the system produces an out-of-memory error message. To recover system resources, try minimizing applications or program groups on the desktop. Reducing the number of displayed objects will free up system resources.

Problem: When running a DOS application that is capable of using Expanded Memory (EMS), none is available even though it was specified in the Program

Information File.

Solution: (Corporate Software) Most DOS applications today use EMS memory that conforms to the LIM EMS 3.2 specification, which requires an EMS page frame to be a contiguous 64K block. When Windows 3.1 is loaded in 386 Enhanced mode, it creates an EMS page frame that conforms to the LIM 4.0 standard, which can be a discontinuous 64K block. However, if there is a contiguous 64K block in the Upper Memory Area, Windows uses it. When a DOS application does not see available EMS memory, the likely reason is that the page frame established by Windows is discontinuous. To remedy this, try freeing up some memory in the Upper Memory Area or relocate the addresses occupied by adapter drivers.

Problem: Why doesn't my Novell NW POPUP.EXE messaging utility initialize properly? When I exit Windows 3.1, I get all my messages.

Solution: (Microsoft Technical Support) If you are running Windows in 386 Enhanced mode and a version of Novell NetWare's NWPOPUP.EXE file with a file date earlier than 3/10/92 in your Windows directory, or if NWPOPUP.EXE is located in a directory prior to the Windows directory entry in the PATH= statement, the NWPOPUP.EXE will load but will not initialize properly under Windows 3.1. It may also be necessary to place the following line in the [386Enh] section of your SYSTEM.INI file: `TimerCriticalSection=10000`. This increases the amount of time (in milliseconds) before the critical section is timed out.

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HSC CD has clip art, tips for Photoshop

HSC Software plans to announce KPT Photoshop CD ROM this month, which offers users of Adobe Systems Inc.'s Photoshop more than 1,000 files of clip art, plug-in filters, textures, and tips on using Photoshop.

Scheduled to ship in the third quarter, the \$99 CD will include documentation files and power tips based on a "Tips and Tricks" series that Kai Krause has distributed over an on-line network. Krause is a Photoshop expert who has been using the Adobe product since it was in alpha testing.

Adobe's Photoshop is a leading image-editing program on the Macintosh, offer-

ing users photo-quality output.

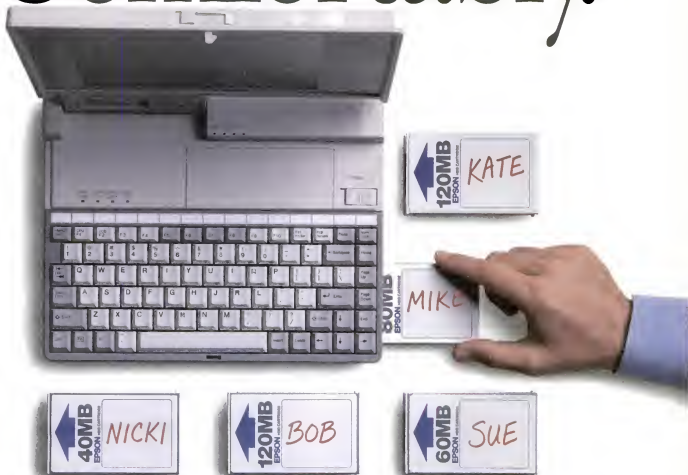
The KPT Photoshop CD also includes QuickTime movies, clip animations, and three-dimensional files, such as bump maps. Demonstration versions of several leading 3-D graphics packages also will be included.

Updates — with new examples, extensions, filters, and support for updates to Photoshop — are expected to follow the initial release on a quarterly basis. HSC said it may also distribute the program on floppy disks.

HSC, based in Santa Monica, California, can be reached at (310) 392-8441.

— Jeanette Borzo

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Window Manager / Brian Livingston

Stalking the esoteric secrets of Windows' humble Shift key

Behold the lowly Shift key. You hold it down while you type, and all you get is a capital letter, right? Not quite. Beneath the Shift key's humble reputation lies a world of undocumented functionality.

Many Windows users know the most basic ways the Shift key has been redefined. One of the first lessons a new Windows user learns, for example, is the fact that holding down the Shift key in a word processor while pressing an arrow key actually highlights text, instead of just moving the cursor. Holding down Shift while clicking your mouse in text

also highlights everything between the current insertion point and the place you clicked (in most word processors).

Other functions of the Shift key, while adequately documented in the Windows manual, are much less well known. When you use the straight line tool in Paintbrush, for example, holding down Shift forces the line you draw to be per-

fectly horizontal or vertical. Similarly, when you use the box or oval tools, Shift forces these shapes into perfect squares or circles, respectively.

Other functions seem to be known only by true enthusiasts: When you start a program by double-clicking an icon in Program Manager — or a file name in File Manager — holding down Shift forces the application to start as a minimized icon instead of in a window. This lets you do things such as starting a background DOS session, for quick access later.

And if you have redefined any application menu items — by writing a Word for Windows macro to modify the File Print routine, say — you can often force the application to revert to the original, built-in procedure by holding down Shift while clicking that menu choice. (To defeat Word's AUTOEXEC macro, however, you must start the application with the command WINWORD /M.)

But there are many undocumented functions for the Shift key that I've found aren't in any manuals at all.

These functions were added to Windows 3.0 or 3.1 by harried Microsoft programmers who wanted a quick way to test various features without exiting and restarting their whole environment every time.

Windows 3.1, for example, added a convenient StartUp group window in the Program Manager. Icons placed in this group are automatically loaded by Windows every time you start it. But if you hold down Shift when you see the Windows logo — and keep it down until Program Manager has finished initializing — the StartUp group is completely ignored! This is handy if something in the StartUp group is hanging Windows. Or you might try this just to get Windows up quickly for a short task.

Windows 3.1 also lets you automatically save your preferred window arrangement in Program Manager and File Manager; simply click on Save Settings on Exit in the Options menu.

But what if you've just perfected your window arrangement in File Manager and don't want to restart Windows?

Simply hold down Shift while you double-click the System Menu icon. Instead of closing the File Manager application, you have just saved your window configuration into WINFILE.INI. Now you can turn off Save Settings on Exit, but your preferred arrangement will show up the next time you start Windows and File Manager.

This function also works when you Shift-Click the System Menu icon in Program Manager. A new PROG MAN.INI is written, saving your window preferences without exiting Windows. This is convenient if you're a PC manager setting up a series of slightly different group windows to be used by other people in your company. Copy each new PROGRAM.INI file to a temporary name, then give the appropriate file to the different users later.

I'll reveal more undocumented key combinations next week.

Brian Livingston is the author of *Windows 3.1 Secrets* (IDG Books). Send comments by MCI Mail to 420-0583, by ComputerServe to 70053, 2035, or by fax to (206) 282-1248.

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NEWS / HARDWARE

Palmtops lend a hand to mobile users

Built-in organizers boost popularity

By YVONNE LEE

When palmtop computers were introduced, many observers derided the machines for their small keyboards, but the pocket computers are now functioning as notepads, communicators, organizers, as well as miniature PCs.

Hewlett-Packard Co.'s HP95LX is the most popular DOS-based palmtop. Other popular models include the Atari Portfolio, Sharp PC3000, and Fujitsu Poquet. Chips & Technologies recently demonstrated several new palmtops, including an HP95LX knockoff.

"[My HP95LX] goes just about everywhere I go, and that includes the bathroom," said Jay Maynard, lead systems programmer at the University of Texas Health Science Center in Houston.

Although others may not be quite so cozy with their palmtops, they still find them to be handy data repositories. Mark Adams, a Ph.D. candidate in

molecular biology, connects other devices to the RS-232 port to collect data.

"A palmtop replaces and enhances several items I used to carry, as well as allowing me free-form access to my data," Adams said.

DOS COMPATIBILITY. When asked why they used a palmtop, most users cited the built-in organizers but said the DOS compatibility enables them to do much more.

"I think the organizer functions get people to look at it," Maynard said. "Why should somebody spend \$200 on a 128K BOSS, when chances are they're already got a PC on their desk? Chances are they could take their application and move it off with them."

A third main function users cited was communications. Manufacturers and third parties sell terminal emulation and PC connectivity software. Both Poquet and HP have touted wireless communications. Several



Palmtop PCs like HP's HP95LX and Poquet Computer's Poquet PC have validated and expanded what has been a niche market.

system administrators said they use the pocket PCs as miniature terminals.

GETTING AROUND THE KEYBOARD. Although the machines were originally discounted for their small keyboards, users have found ways around this.

Laird Popkin, of Thinking Machines Corp., in Cambridge, Massachusetts, and Helen Woolverton, professor of me-

chanical and aerospace engineering at Princeton University, selected the Portfolio and Poquet, respectively, because they had larger keyboards than other palmtops. Stephen Okay, system administrator at Mire Corp., in McLean, Virginia, and Ed Greenberg, a network administrator in San Jose, California, said they have become proficient with new two- and three-finger touch-typing styles. □

NCR shows 3450, 3550 running NT

By KARYL SCOTT

NCR Corp. last week demonstrated Microsoft Windows NT running on its 3450 and 3550 symmetric multiprocessing (SMP) systems at the Win32 Professional Developers Conference, in San Francisco.

The 3450 and 3550 are designed as departmental and enterprise servers, respectively, capable of supporting on-line transaction processing (OLTP) and distributed computing applications.



Windows NT, scheduled to ship in December, is designed to provide high-capacity and high-performance I/O, security, system administration, and built-in networking.

The 3450 tower supports four 50-MHz 486 processors, and the midrange 3550 sports eight 50-MHz 486s, as well as 28 full-height disk drives.

"These are a new breed of scalable computers designed to support traditional network file and print services as well as OLTP applications," said Mark Campbell, NCR assistant vice president of the multiprocessor systems business unit, in West Columbia, South Carolina.

Microsoft has been using the NCR SMP system as its primary Windows NT development platform, said Carl Stork, director of the Windows NT business unit in Redmond, Washington.

Price Waterhouse, in New York, is considering implementing Lotus Notes on an NCR multiprocessing system to increase system up-time and ensure expandability, said Sheldon Laube, Price Waterhouse chief information officer.

The SMP systems currently support Unix System V.4 but will add Windows NT on the list when it becomes available, said NCR's Campbell. The super-servers also support DOS, OS/2, Sun Microsystems Inc.'s Solaris, and The Santa Cruz Operation's Unix. The SMP servers are compatible with DOS, Windows and Unix clients.

The SMP systems range in price from \$41,940 to \$1 million.

NCR can be reached in Dayton, Ohio, at (513) 445-5000.

Maxoptix RXT-HD WORM drive integrates data compression

By ED FOSTER

A new version of Maxoptix's popular RXT line of write-once optical drives integrates a data compression chip to increase storage up to 15 gigabytes or more on a standard WORM cartridge.

The Maxoptix RXT-HD drive is intended for on-line

Electronics of Carlsbad, California, to compress and read data from its standard 5¼-inch WORM cartridges, which without compression normally allow up to 786 megabytes of data. Average capacity using the compression is 2½ gigabytes, according to Maxoptix tests, ranging from 15.6 gigabytes for scanned black-and-white images down to 1.4 gigabytes for binary files.

Maxoptix is offering a free demonstration diskette that emulates the RXT-HD's data compression so users can determine before buying what compression rate they will get on their standard files, Jorgensen said.

Priced at \$3,995 for a single unit, the RXT-HD is a SCSI device that offers average seek time of 108 milliseconds. Cartridges are the same as Maxoptix's RXT-800 WORM drive, which lists for \$129.

Maxoptix, located in San Jose, can be contacted at (800) 848-3092.

Northgate drops Everex for investment group

Investors will buy controlling interest

By ED SCANNELL

Northgate Computer Inc. has backed out of its acquisition deal with Everex Systems Inc. and instead sold a controlling interest in the company to a Virginia-based investment group.

Northgate officials last week said the company's principal shareholders agreed to sell 51 percent of company stock to Marjac Investments Inc., based in Herndon, Virginia, at 4 cents a share.

Also as part of the deal, Marjac Investments will supply an additional financing infusion of at least \$3 million to aid Northgate through its immediate cash crunch.

The value of the deal is estimated at \$1.4 million.

At the same time, Northgate and Everex announced last week they have mutually agreed not to follow through on their letter of intent signed two months ago concerning the possible purchase of Northgate by Everex.

Northgate officials declined to say why the negotiations with

Everex fell apart.

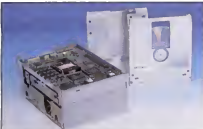
In published reports last week, some financial analysts speculated that the deal failed because Everex stock has taken a tumble since the \$4.3 million deal was announced in May.

The value of Everex has dropped about 50 percent in that time, which has diminished the value of the 750,000 shares promised to Northgate.

Minneapolis-based Northgate was briefly involved in talks with IBM about forging a similar deal about three months ago. IBM officials later admitted, however, they were talking with Northgate simply as part of research to find out more about selling PCs via mail order.

Completion of the deal remains subject to the typical conditions, including the approval of the stock purchase by a special committee of the board of directors.

Marjac Investments has holdings in real estate, agriculture, and various industrial projects in the United States and in 10 other countries, according to a company representative.



Maxoptix's RXT-HD stores up to 15 gigabytes of data on a standard WORM cartridge.

archival storage of digital images, database files, and CAD drawings, according to Rich Jorgensen, product manager for Maxoptix. "This is the first optical drive we know of to have data compression built in," he added.

The RXT-HD uses a data compression chip from Sac



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Add-in board from 50/50 lets you watch TV on your PC

50/50 Micro Electronics began shipping last week a product that turns an IBM-compatible system into a full-screen television.

The 50/50 PC/Television is an add-in board that integrates a 119-channel tuner for VHF, UHF, and cable television frequencies. Users can also directly connect standard cable television coaxial cable to the add-in card.

PC/Television operates in noninterlaced mode, which eliminates flickering, according to company officials. The product has a higher resolution and provides a clearer image than most television sets today, officials added.

Users can work in concert with a software application or, by simply hitting

one key, watch television. Users can also independently control audio and video, which makes it possible to listen to television while carrying on with typical PC applications such as spreadsheets and word processing.

The board will fit into a standard PC XT or PC AT 8-bit slot and works with all VGA and Super VGA graphics adapters and monitors that support 31.5 KHz.

Priced at \$395, the board comes with 5¼- and 3½-inch program disks and F connectors for VHF, UHF, and cable TV as well as VCR and video disc players.

50/50 Micro Electronics, in Sunnyvale, California, can be reached at (408) 730-5050.

— Ed Scannell

Austin to market 386 notebook with trackball for under \$1,700

Austin Computer Systems announced that it will ship a notebook computer with a retail price of less than \$1,700.

The Austin 386/SXL-25 uses a 25-MHz AMD 386SXL processor, which includes some power management features. The company estimates the computer's battery life at around 4 hours.

The 6.2-pound computer has a 10-inch LCD monitor capable of showing 32 shades of gray. It also has a 60-megabyte hard drive, a 3½-inch floppy drive, and a built-in trackball.

The computer ships with 2 megabytes of memory, and users can upgrade to 8 megabytes using memory cards.

Other upgrade options include a 2,400-bit-per-second (bps) modem that sends faxes at 9,600 bps and receives them at 4,800 bps. Users can upgrade the BIOS and install the modem or memory without opening the case, the company said.

The \$1,690 computer is scheduled to ship August 3. DOS 5.0 and Windows 3.1 cost extra.

Austin Computer Systems can be reached at (512) 339-3500.

— Yvonne Lee



Austin Computer Systems' 6.2-pound 386/SXL-25 notebook is based on the AMD 386XL microprocessor.

Label printer works with Windows

Seiko Instruments USA Inc. is shipping a new version of its label printing system that allows users to switch between Windows and DOS applications.

The Smart Label Printer Plus for Windows and DOS provides WYSIWYG displays of each label and is smaller than a Rolodex. It produces labels for envelopes, file folders, address file cards, name badges, floppy disks, or tape cassettes, the company said.

Users can switch between Windows and DOS applications when printing labels and bar codes. The label printing system's software is integrated through a common database and a font set of 51 fonts and four bar codes.

Users are able to "smart capture" addresses on-screen for immediate printing; copy and paste text and graphics using the Windows clipboard; mix text, graphics, and bar code fonts on a single label; and automatically add PostNet bar codes.

The unit retails for \$249 including the printer, software, cable, and a roll of 130 labels. Also available are a Macintosh version and the DOS-only version; both sell for \$199.

Upgrades from the DOS version to the Windows and DOS versions are \$49.

Seiko Instruments Inc. can be reached at (800) 888-0817.

— Torsten Busse

Advance Interlink makes room for the PC . . . on the keyboard

Keyboard Network Station replaces CPU

BY RACHEL PARKER

With components shrinking all the time, Advance Interlink Corp. has seized on a new form of desktop computing by putting the PC inside the keyboard and getting rid of the system box entirely.

The Keyboard Network Station (KNS) comes with a 25-MHz 386SX chip, 1 megabyte of memory expandable

for Advance Interlink.

"We figured that every computer needs a keyboard; since you have to have a keyboard anyway, why not eliminate the computer?" Baker said. "You get the same functionality in one piece."

The device also has a 16-bit slot, which Advance Interlink has designed as a network slot, turning the keyboard into a network workstation.

Advance Interlink believes that the Keyboard Network Station will appeal to any organization where desk space is at a premium. While observers have suggested that such businesses use laptops, Baker says that the KNS is a better solution. "With this, you have a standard VGA screen."

At just under 6.6 pounds, the KNS can also be transported between

home and office easily, he added.

The 386SX KNS is currently shipping and sells for \$999. The company expects to add a 486 chip to the keyboard in the future.

Advance Interlink, in Huntington Beach, California, can be reached at (714) 894-1675.



AIC's 386SX-25-IDE Keyboard Network Station puts the whole PC, including a hard drive, inside the keyboard.

to 16 megabytes, a 3½-inch floppy drive, space for a hard drive, two serial ports, one parallel port, and a Super VGA controller, all built into the keyboard unit.

The total package fits within the standard length and width of an AT keyboard but does make it somewhat taller, said Joe Baker, marketing manager

Maxoptix delivers its Tahiti II rewritable optical drive with write-once functionality

BY LA FE LOW

Maxoptix Corp. has introduced the Tahiti II, a multifunction optical disc drive incorporating write-once functionality with the company's Tahiti II rewritable magneto-optical drive.

To speed up data transfer during reads, the Tahiti II uses a read/write cache buffer. The drive is available with three buffer configurations: 256K, 1 megabyte, and 4 megabytes.

"The real advancement is that these buffers are controlled by an advanced caching algorithm [called the] multi-segmented cache with anticipatory read ahead," said Werner Glinka, product manager for the Tahiti II. "This combines the benefits of a full-blown cache with the read-ahead algorithm."

Users will be able to exchange media with other optical drives, as the Tahiti II can use both removable, rewritable media and write-once media conforming to the International Standard Organization's 10089 and 11560 data interchange standards, respectively.

Maxoptix is also developing 1-gigabyte cartridges for users who need to expand the capacity of their systems. The expansion cartridges come in rewritable and write-once versions.

The Tahiti II features a seek time of 35 milliseconds and can support sustained data transfer rates of over 1 megabyte per second. The drive also has a SCSI-2 interface for integration with existing systems.



Maxoptix's Tahiti II is a multifunction optical disk drive that reads both write-once and rewritable optical media.

The Tahiti II drive, which carries a one-year warranty, is now shipping for \$4,045 with the 256K buffer; \$4,125 with the 1-megabyte buffer; and \$4,305 with the 4-megabyte buffer. The 1-gigabyte cartridges sell for \$275 for either a rewritable or write-once version.

Maxoptix, in San Jose, California, can be reached at (408) 954-9700.



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Diamond introduces inexpensive 24-bit Windows accelerator card

BY CATE CORCORAN

Diamond Computer Systems Inc. has introduced a 24-bit color Windows accelerator card for the low price of \$249.

The company kept the SpeedStar 24X's price down by using Dynamic RAM (DRAM) rather than Video RAM (VRAM), which is faster but more expensive. However, the SpeedStar 24X's performance is competitive with VRAM-based products, the company said.

"We're faster than most Windows accelerators," said Jeff Orr, assistant product manager for Diamond.

But S3 Inc., which makes a VRAM-based Windows accelerator chip, said DRAM-based cards are slow in scrolling, an important operation in text-based applications such as word processing.

Diamond conceded that its own S3-based card is 2½ times faster than the

SpeedStar at text scrolling, but said SpeedStar outperforms the S3 card by 30 percent in the word processing and spreadsheet tests in the WinTach benchmark from Texas Instruments.

The card supports 24-bit color, or 16.7 million colors, in a noninterlaced resolution of 640 by 480 pixels. At 800 by 600 pixels and 640 by 400 pixels noninterlaced, the board displays 32,768 colors. It supports 256 colors in a noninterlaced resolution of 1,024 by 768.

In high-resolution, noninterlaced modes of 1,280 by 1,024 and 1,280 by 960, the card displays 16 colors. Refresh rates run as high as 72 hertz noninterlaced and 45 hertz interlaced.

The SpeedStar 24X is scheduled to ship this week.

Diamond Computer Systems, in Sunnyvale, California, can be reached at (408) 736-2000.

Century module fits 2 megabytes onto four chips

Century MicroElectronics Inc. today announced a high-density SIMM memory module that packs 2 megabytes of memory into four chips. Conventional SIMMs use 24 chips, the company said.

Century is promising users more reliability, lower power consumption, and lower prices in the future.

The modules use 18-bit-wide Dynamic RAM chips, whose prices should drop 25 percent in the next few months, thus lowering the prices of the SIMMs, said Marshall Hui, Century executive vice president. The SIMMs are also less expensive to manufacture because they have fewer chips and fewer connections.

The 2-megabyte version, the 36512N, lists for \$150. The module uses four chips and is one-quarter inch lower than conventional SIMMs, the company said.

A 1-megabyte module, the 36256N,



Century MicroElectronics is now shipping its compact SIMM line, in 1- and 2-megabyte versions.

uses only two chips. It lists for \$80.

Both chips slip into a 72-pin SIMM socket. They will work in PS/2 Models 55, 65, 70, 90, and 95. They also work in Acer's Frame and Power series, Compaq's 386 and 386N series, Wyse's Decision 486/33E, and all Hauppauge systems. The modules also work with notebook computers, AT-bus PCs, and ISA-bus PCs with 72-pin sockets on their motherboards, the company said.

The modules are shipping now in 70- and 80-nanosecond versions.

Century MicroElectronics can be reached in Santa Clara, California, by calling Sandy Johnson at (408) 748-7788.

— Cate Corcoran

S3 releases 24-bit color version of its graphics accelerator chip

S3 Inc. is now shipping a 24-bit color version of its popular Windows accelerator chip.

In addition to the new range of colors, the new 86C924 graphics coprocessor offers higher noninterlaced resolutions and supports VESA local bus.

"Users can expect to pay about \$50 more list for the boards that use the 924's new features," said Neil Margulis, product marketing manager for S3. The chip itself is \$5 to \$10 more expensive than the older chip and requires a more expensive RAM digital analog converter, he said.

With 1 megabyte of memory, the chip supports 16.7 million or 32,768 colors at a resolution of 640 by 480 pixels. The chip also offers 256 colors at resolutions of 1,024 by 768 and 800 by 600. At high

resolutions of 1,280 by 960 and 1,280 by 1,024, the chip can display 16 colors.

With only 512K of memory, the chip supports 256 colors at a resolution of 640 by 480 pixels. For those users who need only 16 colors, the low-memory option supports a variety of resolutions: 640 by 480, 800 by 600, and 1,024 by 768.

Like all GUI accelerators, the chip speeds graphics operations by offloading them from the CPU. The chip supports bit-block transfers, text bit-block transfers, image transfers, line drawing and clipping, and rectangle fills.

The chip is now shipping to board manufacturers for \$47 in quantities of 1,000. The first crop of boards should ship in September or October, S3 said.

— Cate Corcoran

Acma ships 50-MHz 486DX2 system for less than \$2,000

BY YVONNE LEE

Acma Computers Inc. began shipping a 486DX2-based computer last month for less than \$2,000 — offering PC buyers even more bang for their buck.

The Acma 486DX2/50 screams along with a 50-MHz processor, running at an estimated 22 million instructions per second, and scores over 200 on the Landmark CPU tests, according to the company. To keep the system cool, the company has included a heat sink sitting on top of the high-speed processor that dissipates the heat, prolongs processor life, and ensures stable performance, the company said.

Standard configuration includes 4 megabytes of RAM, a 130-megabyte hard drive, a math coprocessor with an 8K cache, 3½- and 5¼-inch floppy drives, a 14-inch monitor, a 16-bit graphics adapter, and eight expansion slots.

The \$1,995 computer is available in

two chassis — a 6½-inch-by-21-inch-by-17-inch desktop version with three externally accessible drive bays and two additional internal bays; and a smaller desktop unit measuring 6½ inches by 17 inches by 17 inches with only four externally accessible bays. The system also comes optionally encased in a mini tower with five drive bays for an additional \$50, or in a full-sized tower case with eight drive bays for an extra \$75.

Its monitor displays a noninterlaced 1,024-by-768 resolution and has a 0.28mm dot pitch. The 16-bit VGA graphics card will display 256 colors at a resolution of 1,024 by 768.

Users can expand the memory to as much as 32 megabytes. Additional hard drives from 40 megabytes through 1.2 gigabytes are also available.

The computers ship with both DOS and Windows 3.1 installed.

Acma, based in Fremont, California, can be reached at (800) 786-6888.

Video Seven ups its graphics ante with accelerator, adapter

BY YVONNE LEE

Video Seven introduced two graphics products last month — a \$249 Windows accelerator and an upgrade to its 16-bit 1024i S-VGA graphics adapter.

The Win.VGA Windows accelerator will display 256 colors at 1,024-by-768 resolution in noninterlaced mode, and 16 colors at 1,280-by-1,024 resolution in interlaced mode. Win.VGA is available now with either 512K or 1 megabyte of display RAM on board. The 512K version retails for \$199, and the 1-megabyte DRAM board is \$249. The cards support refresh rates of up to 72 hertz at all resolutions.

Like some Windows accelerators, Win.VGA includes an on-board graphics coprocessor chip, which speeds screen redraws by processing information that would be handled by the computer's main processor. The company's Fast-

Write memory caching feature further speeds processing by eliminating wait states between the processor and the card.

The 1024i Plus is also a graphics accelerator, although it lacks the on-board coprocessor chip for Windows acceleration featured on the Win.VGA card.

The 1024i Plus has 512K of DRAM and will display 16 colors at 1,024 by 768, or 256 colors at 800 by 600 in interlaced or noninterlaced modes.

The 1024i Plus will be priced at \$129 and is scheduled to ship later this month.

Both Win.VGA and 1024i Plus include software drivers for Windows, Microsoft Word, AutoDesk AutoCAD, WordPerfect, Ventura Publisher, and Lotus 1-2-3. Win.VGA has additional drivers for Presentation Manager and several CAD programs.

Video Seven, a division of Headland Technology Inc., in Fremont, California, can be reached at (510) 623-7857.

Chip enhances laser printer images

Destiny Technology Corp. will announce this week a printer controller chip that will make it easier and quicker for OEMs to build high-quality, 600-dot-per-inch (dpi) laser printers.

The EET-X, or D9010 ASIC, chip is an extension to the company's patented edge-enhancement technology, which smooths the edges of printed images and text.

"EET applies mostly to text and line art enhancement," said David Larrimore, Destiny's marketing manager. "EET-X incorporates algorithms that handle and enhance all elements of the page — including text, line art, halftones, graphics, and photographic images," he said.

It is the industry's first single-chip solution that will allow OEMs to add enhancement technology for less than

\$20, Larrimore said. EET-X can be applied to any page description language, including PostScript and PCL.

Output created with a laser printer that incorporates the chip will look like it was produced with a Linotype-like device, although it was produced with a 300-to-600-dpi printer engine. In addition, the chip significantly speeds up the printing process, Larrimore said.

EET-X provides a perceived text and line art resolution of 1,200 dpi; halftones appear 2,400 dpi or more.

Technically EET-X works with any resolution, but it is designed to work with laser printers up to and including 600 dpi in their normal mode.

Destiny, in Milpitas, California, can be reached at (408) 262-9400.

— Torsten Busse



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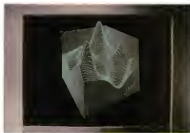
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Tech Talk / Steve Gibson

Darwinism will make dinosaurs of all platforms except the PC

Many recent articles on the falling prices of PCs have focused on the inevitable shake-out this will bring

in the PC clone industry. I believe that the radical advances in the PC's power-to-cost ratio will have another far-ranging impact: All competing hardware platforms are dead. Inertia may carry them forward for a while, but their justifications for existing have completely evaporated.

In today's market, a fully functioning, very fast 486-based personal workstation with RAM, hard disk, high-resolution display, floppy disks, and a nice keyboard can be purchased for about \$2,000. It probably hasn't escaped your notice that this is an incredible value. This platform can run trusty old DOS, Windows, OS/2, Unix, NT, or Geoworks, plus all of your beloved applications — a stunning, cost-effective, and powerful solution.

Now what do you suppose it means when Next Inc. announces that it is porting its very nice NextStep operating environment to the 486 PC platform? Oh sure, that sleek and sexy black Next cube has won all kinds of design awards, and it's even become something of a status symbol when perched alongside one of those new fully automated executive

cappuccino machines. But Next hasn't been able to sell many of its workstations. Why? Because in just the past year or so, the PC has become way too powerful and way too cheap. However, those high-end PCs, which are selling for less than \$2,000, will soon be able to run NextStep, giving it millions of high-end PCs to call home.

And what do you think it means when Sun's newly formed SunSoft division begins aggressively pushing its flavor of Unix on the PC platform? Just count

battery-powered Next or Sun workstation? Sorry. Not today and probably not ever. However, once NextStep and Solaris are ported to the Intel platform, they could easily run on my laptop.

Where does this leave Sparc, MIPS, PowerPC, and other RISC-based platforms? I would dearly love to participate in the growth of a freshly conceived alternative to this sadly evolved and really quite lousy Intel and IBM architecture. But, sadly, I predict that it just isn't going to happen. Why? Because the PC has become way too powerful and way too cheap.

the number of Sun workstations in your company; now count the number of PCs. Sun would love you to buy a Sparcstation, but you don't, because they're just too darned expensive. Why? Because they don't have every clone maker and mail-order vendor in the world competing with each other. Only the PC platform has that benefit.

And what if you need to take a Next cube or Sun workstation on the road? Could you purchase an inexpensive,

Americans instinctively like underdogs, so we cheer for the Sparcs, MIPSes, and PowerPCs of the world. We shout: "Yeah! Neat! We'd love to have more than we have now! Go for it! Give us a new clean architecture!" But when they come to us for a purchase decision, we hastily add a few demands: "Do come back when you've got laptop machines, E-mail connectivity with everything else we do, and a user interface compatible with what we know. And we'll need cross-platform cut, paste, Dynamic Data Exchange, Object Linking and Embedding, macro compatibility, and seamless file reading and writing so that all this new stuff will be compatible with everything else we already have in the enterprise. Of course everything we're using now will still have to work the way it does, only better. And, oh yeah, it's cheaper isn't it?"

We can afford to demand so much because even our existing PC-compatible platforms haven't run out of steam — not by a long shot. And this is another crucial point: Intel is responding to the threat of the RISC platforms, as well as to the cloners of its own x86 chips, by releasing ever-faster processors. The 586 lies just around the corner and the 686 is not far behind. Intel has stated that these chips will continue to provide compatibility with the past, while delivering full RISC-class processing power.

So while we may all root for the underdogs, few of us are willing to offer them expensive charity.

In light of all this, something else is equally clear: Unless Apple immediately licenses its hardware or ports its system software to the PC platform, the beloved Mac is just as doomed as the RISC boys despite its good head start.

You'll notice something new at the bottom of this column: a collection of E-mail addresses for me. In keeping with InfoWorld's energetic new "Let's all get connected" religion, I'm explicitly inviting you to "reach out and connect" with me. As you can see, my personal electronic mailbox is accessible through



The Gibson Research 'acoustic fountain' greets visitors with a computer-controlled whoosh-whir-vroom.

either MCI or Internet. CompuServe subscribers can easily reach me via CompuServe's Internet gateway. From CompuServe, address a note to me at ">Internet:Steve@grc.com." The ">Internet:" portion instructs CompuServe to pass the balance of the address unchanged through its Internet gateway. My Internet address is "Steve@grc.com," because I'm known as "Steve" to our internal E-mail system, which in turn is known as GRC (Gibson Research Corp.), a commercial (com) organization. So, if something I write triggers a thought, please drop me a note about it or about anything else.

Maybe you'll want to tell me what you think about my "acoustic pyramind," which I wrote about several weeks ago. So many of you expressed a desire for a picture of this wacky creation that we decided to show it to you. Many of you also asked us to give you an idea of what it really sounds like, through a tape recording, a MIDI sequence, a multimedia presentation, and, in one rather bizarre request, direct interconnection through neural implants. Unfortunately, the fountain's "sound" cannot be recorded because much of the effect is the result of a slow mixing of massive 5- to 10-cycle-per-second sine waves! In some ways it's really more of a sound pump than a speaker system.

As for the guy who inquired about the possibility of direct neural interconnection with the fountain, there's hope for you too. I've heard rumors that Bob Metcalfe, InfoWorld's illustrious publisher, is turning his attention from the ether to a direct neural gateway to allow him to keep up with all the E-mail you're sending. Keep those electronic cards and letters coming. As always, we'll keep you informed.

Steve Gibson is the developer and publisher of SpinRite and president of Gibson Research Corp., based in Irvine, California. Send comments to MCI Mail: 489-9468; via the Internet at Steve@grc.com; or fax: (714) 362-8808.

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Looking good! You'll appreciate the extra large 10" viewing area of the high contrast VGA display as well as the notebook's non-glare backlit LCD with 32 gray shades. You'll also like its sleek, contoured design and rugged, scratch-resistant metallic bronze finish case.

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NEWS / NETWORKING

PIPELINE

ANNOUNCED

Data search service offered for LANtastic
With Artisoft's new LANual Information Service, users can retrieve updated technical and product data about their LANtastic network by searching for indexed words and phrases. Artisoft's new information service uses Folio Infobase files and includes a collection of Artisoft manuals, SpecDisk Information Diskettes, LANtastic Compatibility Guides, and Technical Bulletins compiled into diskette format. A one-year subscription to the LANual information service is priced at \$249. (602) 293-4000.

SHIPPING

Compatible lineashes Macintosh-to-DEC links
Compatible Systems Corp. is shipping its EtherRoute/TCP family of LocalTalk-to-Ethernet gateway/routers with DECnet protocol support. The software allows Macintosh machines connected to a LocalTalk network to communicate with Digital Equipment Corp.'s minicomputers or other machines that support DECnet protocols on an Ethernet network. Current EtherRoute/TCP users can receive the DECnet upgrade free. (800) 356-0283.

The Series 500 LAN Hub from **Luxcom Inc.** provides a LAN-based connectivity solution for IBM environments. Connecting as many as 128 Token Ring stations or 96 Ethernet stations per hub, the Series 500 can support connections as far away as 100 meters over unshielded twisted pair (UTP). Base and power modules retail for \$990, while pricing for access modules begins at \$1,295. (510) 770-3300.

UPGRADES

Zyxel adds security to V.32bis modems
Zyxel USA has added caller ID and multilevel security features to its V.32bis modem, which offers both 14.4-kilobit-per-second (kbps) data and 14.4-kbps/V.17 G3 fax capabilities. The multilevel security function provides in-house protection against unwanted calls or faxes. With the caller ID function, the caller's phone number, as well as the time and date of the call, are displayed. Zyxel's U-1496E fax/modem is available now and priced at \$469. (714) 693-0808.

Continued on page 38

Da Vinci updates eMail for Windows

DOS, Windows versions now mesh

BY DAVID COURSEY

Da Vinci Systems next month will begin beta testing its Windows 2.0 electronic mail client, which includes support for multimedia, as well as a mail browser, file folders, spelling checker, and conversation tracking.

Da Vinci's eMail for Windows, Version 2.01, due to ship in the fourth quarter, will allow users to work with multiple messages simultaneously and will add message management enhancements, said Chris Evans, Da Vinci vice president of marketing.

New multimedia support allows users to attach sounds to events in the program, much as many users already do on the Macintosh. For example, incoming messages can trigger a particular sound based on their priority.

"If you're doing something

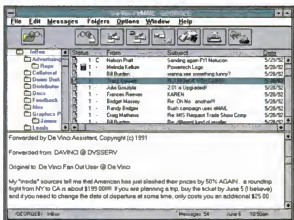
else and receive mail, you can tell what kind of message it is by the sound — without having to stop what you are doing," Evans said.

A new mail browser opens a window that displays the currently highlighted message. As users scroll through a collection of messages, they can "browse" each message without having to open an additional window to view it, Evans said.

"Ergonomically this is much better and makes it easier to manage your mail without having to worry about opening and closing extra windows," Evans said.

Da Vinci's upgrade also offers desktop management features that allow users to drag and drop their mail into folders and subfolders, Evans said.

In addition, a "wastebasket" feature temporarily preserves deleted mail; conversation



Da Vinci's eMail for Windows 2.0 will include a mail browser and other mail handling features for speeding through messages.

tracking allows users to view all messages in the sequence the exchange took place. The new version also allows the contents of file attachments to be viewed from within Windows.

Users who have seen the preview version of Da Vinci eMail for Windows 2.01 say it lacks some features expected in the final version but succeeds in bringing the company's DOS and Windows versions together.

"There are some missing features and functions that

you'd expect in a beta release," said Jeff Webb, a member of the IS staff at the University of Texas, in Dallas.

The university likes Da Vinci because it is based on Novell's MHS mail transport and for its ease of use and relative simplicity, Webb said. "I think they are on the right track, and they are going to have a real good format for Windows," Webb said.

Da Vinci Systems Corp., in Raleigh, North Carolina, can be reached at (800) 328-4624.

NetManage falls in step with NT, debuts suite of tools

BY VANCE MCCARTHY

SAN FRANCISCO — In conjunction with Microsoft Corp.'s release of its Windows NT developers' kit, NetManage Inc. last week debuted a suite of tools for enabling internetworking applications under TCP/IP.

Shown during Microsoft's Win32 Developers' Conference here, NetManage's Chameleon32 for Windows NT provides third parties with "the absolute minimum they need for building true network applications," said Dan Geisler, NetManage's director of marketing.

Built on top of Windows NT's TCP/IP sockets, Chameleon32 provides three core



NetManage's Chameleon32 brings TCP/IP applications to Windows NT developers.

networking applications, including transferring of files, allowing users to log onto remote stations, and verifying the availability of a host, Geisler said.

File transfer is enabled through NetManage's support of the File Transfer Protocol. Remote log-on is enabled through access to Telnet terminal emulation.

Chameleon32 is bundled with a built-in Simple Network Management Protocol agent, making it network management-ready, Geisler added. Chameleon also sports a Windows NT agent and an application programming interface (API) that allows additional

agents to be registered with the machine.

For ease of porting, Chameleon32 is written to the Windows Sockets API, a recently announced TCP/IP standard from two dozen vendors including Microsoft, Sun Microsystems, and NetManage.

NetManage's Chameleon32 for Windows NT will be available in a "developers' release" in late July for \$495. A final release is slated to be released with Microsoft's final production version of Windows NT late this year or early in 1993, NetManage officials said.

NetManage, in Cupertino, California, can be reached at (408) 973-1711.

BBN bows into burgeoning network management field with NMS

BY TORSTEN BUSSE

BBN Communications, a leading voice and data communications firm, will enter the network management market this summer with products aimed at simplifying management of mixed environments.

BBN's Network Management System (NMS) offers network configuration, troubleshooting, monitoring, analysis,

and performance management capabilities across multiple hardware platforms, said Joanne Womboldt, product line manager at BBN.

NMS allows users to map their network topology using a graphical, real-time status display function. It can manage any network resource that supports the Simple Network Management Protocol-Managed Information Base II, the Common

Management Information Protocol, or DigitalNet IV access modules, Womboldt added.

NMS incorporates elements of Digital Equipment Corp.'s Enterprise Management Architecture (EMA) on Ultrix platforms, providing published interfaces, conformance to standards, and a common interface for all devices. For high-level enterprise-wide management, EMA interoperates with IBM's

NetView management system.

NMS also can monitor and control BBN's packet switches, routers, and wide area network access devices. NMS will be available in August priced starting at \$25,000. A complete system, including a DigitalNet and DigitalNetc will start at \$80,000.

BBN, in Cambridge, Massachusetts, can be reached at (617) 873-6231.

PIPELINE from page 37 ANNOUNCED

Brixton to route SNA to mainframe

Brixton Systems Inc. has introduced two products that support IBM's APPN End Node/LEN: BrlXu6.2 Application Programmatic Interface (API) and BrlXu6.2/IP Router. Brixton's \$3,950 BrlXu6.2 API, which is currently shipping, allows IBM SNA network users to communicate with IBM mainframe applications. Available in August for \$4,950, the BrlXu6.2/IP Router is an interconnection of TCP/IP LANs over SNA. (617) 661-6262.

The IDEA group of companies has announced mouse support for its new release of IDEAComm 5251 for DOS and IDEAComm 5251/Gateway Plus emulation products. The IDEAComm 5251/Gateway Plus has been enhanced to support the Novell IPX network protocol. Pricing for the products is \$150 for IDEAComm 5251 for DOS and \$120 for IDEAComm 5251/Gateway Plus. (508) 663-8851.

UPGRADES

Trakker net monitor poses smarter queries

Concord Communications Inc.'s Dialog Tool for its Internet monitor, Trakker, enhances network layouts, minimizes equipment investments, and improves network performance by letting users ask "what if" questions. The package provides the data needed to redesign or segment an enterprise network, and it has the capability to monitor network dialogs across an internetwork. Current Trakker users can get a free upgrade. (508) 460-4646.

PRICE CUTS

Dayna's EtherPrint converter cut \$250

Dayna Communications Inc. has cut the price of EtherPrint Plus, its EtherTalk-to-LocalTalk protocol converter, from \$899 to \$649. EtherPrint Plus can connect up to four LocalTalk devices to an Ethernet network. With the exception of routers, all other types of LocalTalk devices are supported. (801) 531-0600.

Codenol Technology Corp. has reduced the price of its CodeNet-954X 100-megabit-per-second FDDI adapters. The CodeNet-9540 FDDI Single Attached Station Adapter, the CodeNet-9543 FDDI Dual Attached Station Adapter, and the CodeNet-9541 Single Port Fiber Optic Concentrator Card are now available for \$3,595, \$4,595, and \$2,395, respectively. (914) 965-6300.

Ingres DBMS to handle multidimensional data

BY SCOTT MACE

Ingres expects to extend its relational DBMS and server, which runs primarily on Unix hardware, to manage multidimensional data, the company recently announced.

Ingres' database management system (DBMS) capabilities extension, due by mid-1993, is announced in conjunction with the company's agreement with ESL, a leading developer of applications that use multidimensional data such as maps, genetic diagrams, and physical characteristics such as height and weight. Such data is used in geographic information systems (GIS) and medical imaging applications.

Ingres will collaborate with ESL to expand the Ingres Intelligent Database's ability to manage objects containing multidimensional data. ESL will also resell GIS applications based on the Ingres database.

Ingres' multidimensional support is being implemented as

a class library of spatial objects, including points, circles, boxes, ellipses, lines, and polygons, as well as familiar spatial functions such as equality, intersection, computation of areas, and detecting when one object is inside another spatially.

Adding such methods to the Ingres kernel will reduce programming time and increase productivity, officials said. Ingres expects to include multidimensional data management capabilities in the Ingres database in fall 1993.

"We're moving the relational DBMS yardstick forward to the next playing field," said Dennis McGinn, president of Ingres.

Selected Ingres customers will begin beta testing the multidimensional extensions in the first half of 1993, Ingres officials said. Client/server access from PC-based mapping software will also be developed, officials added.

Ingres, located in Alameda, California, can be reached at (510) 769-1400.

SofNet offers faxing for one user or many

BY DAVID COURSEY

SofNet Inc. this week will begin shipping a single-user DOS fax software package that can be upgraded to support a LAN without changes in hardware or the user interface.

FileFax for DOS allows the PC to act as a fax server for networked faxing and requires only one modem, said Sterling Wharton, SofNet president.

Additional users are added by calling the company and receiving additional serial numbers necessary for multiser support.

The program is compatible with all popular fax/modems and supports Novell, Banyan, and other LANs, Wharton said.

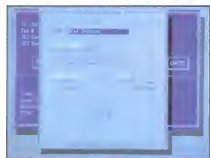
The program's main features include a scheduling program to ensure that fax transmissions don't interrupt work in progress, a phone book, cover-page generation, and a log of incoming and outgoing faxes.

FileFax for DOS allows faxing from applications and

receiving faxes while other applications are running. It also provides a viewer for received fax documents.

Incoming faxes may be saved in DCX, PCX, or Group III image file formats.

The program requires 4 megabytes of disk space, plus room for received faxes, as well as 14K



SofNet's FileFax for DOS can be seamlessly upgraded to a fax server for LANs.

of conventional memory. It will run on any PC under DOS 3.0 or later, Wharton said.

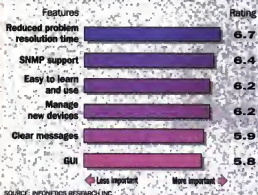
FileFax for DOS is priced at \$79 for a single-user version. Pricing for LAN upgrades starts at \$99, according to company officials.

SofNet, based in Atlanta, can be reached at (404) 984-8088.

Market Spotlight

Required features for LAN management tools

Rated by importance on a scale of 1 to 7



The worldwide market for network management software will explode over the next five years, as vendors get a better handle on developing products users are demanding, according to a study just released by Infonetics Research Inc.

Infonetics' Critical Management Tools: What Network Managers Really Need predicts worldwide spending for network management applications will increase to \$203 million in 1995, up more than 18,000 percent from last year's \$1.2 million.

The study also found this rapid growth would be largely based on industry's ability to meet several important administrator demands, including: more automated tools and procedures, support for SNMP as a standard, a more consistent user interface, a larger variety of remote control capabilities, and more ability to customize their net management environment.

Infonetics' study is based on 30 in-depth case studies of experienced network managers at Fortune 500 companies. The 150-page, \$7,500 study is available from Infonetics, in San Jose, California, which can be reached at (408) 298-7999.

Faxcess stores documents for retrieval over the phone

BY VANCE MCCARTHY

ComArt International has introduced a dial-a-fax retrieval system that can store as many as 400 PC-created documents for call-up requests.

The Faxcess stores text and graphics documents in pre-designated numbered "mailboxes," company officials said.

Dial-in users gain access to the faxes through a phone or PC, dialing in the mailbox numbers they need through a voice menu. If users don't know the mailbox location of the fax requested, Faxcess will fax the caller a complete index of all documents with locations, said ComArt director Steve Baker.

Documents are stored as bit-

mapped files and are transmitted at up to 9,600 bits per second. In addition, Faxcess is password protected, allowing only authorized users to remotely add or delete documents.

Documents may be scanned-in from existing literature or custom-created on a computer or desktop publishing system and downloaded via a fax/modem.

Faxcess also offers a special remote support feature. With password permission, customer service technicians can gain access to Faxcess over the phone lines to diagnose or repair problems.

Such repairs have been successful in about 90 percent of trouble calls, Baker said.

Faxcess is shipping now for \$2,495 from ComArt.

ComArt, in Lake Forest, California, can be reached at (800) 266-2787. A demo fax is available by dialing (800) 329-3366.



Faxcess stores up to 400 PC-created documents for remote automated fax retrieval.

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four most popular network operating systems. But to be perfectly honest, not all development and testing takes place at our place.

Because the engineers at Novell, SCO, Microsoft and Banyan—

Unfortunately, those engineers were unable to make it to the above photo session.

Nor could the specialists who created the COMPAQ ToolKits and TechNotes—the industry's most sought-after

guides for multi-vendor network integration.

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Our key technical alliances with major operating systems ensure optimum performance and support of your PC network.



Dayna to show network cards, applications

By **TORSTEN BUSSE**

Dayna Communications Inc. will show at Mactivity '92 this week Ethernet adapters, routers, and network management applications.

The company will announce its PathFinder plug-and-play LocalTalk-to-Ethernet router, which comes with three built-in Ethernet connectors, making it compatible with any type of Ethernet cable, company officials said.

PathFinder will be available in early August for \$899, they added.

Also on display will be the \$319 DaynaPort E/II-3 Nubus Ethernet cards for the Macintosh II family. Each adapter is equipped with one BNC port for thin Ethernet, a RJ-45 port for 10Base-T, and an AUI port for thick Ethernet or fiber-optic cable.

The company will also show its previously announced network management system, Network Vital Signs, which alerts managers to problems with AppleTalk devices such as servers, printers, and routers. NetScope Console and NetScope Probe is a network traffic monitoring system that provides information on the AppleTalk segments on the Internet.

Dayna, of Salt Lake City, is in Mactivity booth #422 and can be reached at (801) 531-0600.

Macintosh networking products debut

Third-party developers to showcase their latest offerings at Mactivity '92

By **TORSTEN BUSSE**

Apple Computer Corp.'s third-party developers will debut this week a host of networking products designed to better integrate the Macintosh into corporate workgroups.

The new products, which appear at Mactivity '92, in Santa Clara, California, include offerings for electronic messaging, network management, security, and software distribution, according to conference officials and exhibitors.

"Mac connectivity is quietly filling in the gaps that people have been questioning for a long time," said Paul Kent, president of Winehouse Computer Co., a Macintosh information services firm and cosponsor of Mactivity '92.

For electronic mail, Intercom Systems Corp. will debut its

X.400 mail server for Apple's QuickMail messaging product. It allows QuickMail users to access other E-mail users over Ethernet and X.25 links.

Also, Mainstream Data Inc., in Salt Lake City, will announce the release of its Mainstream NewsCast for QuickMail, an E-mail news delivery system that couples Mainstream Data's FM/Satellite network of news sources — such as Reuters News Service, Associated Press, and Knight-Ridder/Tribune Business News — with CE Software's QuickMail.

For network management, Caravelle Networks Corp. of Nepean, Ontario, Canada, will show Version 2.0 of its network management product Net-

Works, due in August. The new version allows for device specific tests to be performed on QuickMail and Microsoft Mail servers. LaserWriters can now trigger alarms to the administrator when paper jams or other paper conditions occur, company officials said. NetWorks is priced at \$995.

Magna, in San Jose, California, will announce Empower Remote, a security application that allows users to administer and manage the security of AppleTalk networks remotely from a central point in the network.

The AG Group, in Walnut Creek, California, will announce its new \$995 TokenPeek network analyzer, which is scheduled to ship in the third quarter.

The analyzer captures and decodes traffic in any mixed-platform Token Ring environments. It utilizes the Token Ring interface card to capture all network traffic for real-time and post-capture analysis.

For security, Sasasoft Software, in Hanover, New Hampshire, will preview a new week-end checkout application that lets administrators track off-site use of software through non-networked Macs. This extension to KeyServer works much like a library: users who want to run an application check out a key from the KeyServer, which maintains usage count for each application.

Mactivity '92 will be held Tuesday through Thursday at the Santa Clara Convention Center. The conference booth can be reached at (800) 798-2928.



German vendor ships credit card-size fax/modem

By **DAVID COURSEY**

A German firm is shipping a credit card-size fax/modem and voice mail system designed for use with notebook and palmtop PCs.

Expected to be sold through hardware manufacturers, the Dr. Neuhaus Fur Card 2400 is a 2,400/9,600-bit-per-second (bps) device that fits into a

standard PCMCIA slot used in systems from NCR Corp., Dell Computer Corp., and other vendors. Librex has announced plans to bundle the modem with its T-Series 386SX notebook system.

The modem also sports voice mail capabilities and is bundled with a small application that allows it to function as a telephone answering machine, re-

ceiving messages when the PC user is unable to answer the telephone, said Remco Treffkorn, Dr. Neuhaus' U.S. representative.

Also bundled with the modem is QuickLink, a fax and data communications software for DOS and Windows.

The 5mm thick modem supports 2,400-bps V.22bis and V.42 error correction, and

V.42bis and MNP 5 data compression. The 9,600-bps fax/modem is Group 3 compatible.

List price for the modem will be approximately \$340 but will be set by the OEM customers, Treffkorn said.

Dr. Neuhaus, headquartered in Hamburg, Germany, has a U.S. office in Aptos, California, that can be reached at (408) 685-0928.

'Silver Cloud' eases AppleTalk setup

By **KATE ORRANCE**

AG Group Inc. will demonstrate during this week's Mactivity '92 conference a network management tool designed to simplify the installation and maintenance of AppleTalk networks.

AG's Silver Cloud simplifies the selection of network resources such as printers, servers, and modems, and assists network administrators in organizing their growing AppleTalk networks, said David Burk, AG's marketing manager.

"The product centralizes control of the view of the network for network managers and simplifies network usage for users, benefiting both network administrators and users," Burk said.

Silver Cloud lets administrators customize user views of zones and devices on the network so portions that are confusing, infrequently used, or complicated to access can be hidden from users.



AG Group's Silver Cloud network management tool gives users and administrators simple, customized menus to network assets.

Similar to Apple's System 7.0 Finder, users can create aliases and pseudonym references for LaserWriters, file servers, and other devices from a variety of zones and place them in device folders.

Silver Cloud, running under System 6.x or later, is available now in a 25-user pack for \$495, company officials said.

AG, in Walnut Creek, California, can be reached at (510) 937-7900.

Database Gateway adds speed, SQL Server support

By **SCOTT MACE**

Micro Decisionware has added faster performance and support for Microsoft's SQL Server 4.2 features set to its Database Gateway for DB2.

A new connection manager provides load balancing between two or more gateways to optimize performance over heavy client loads. Access for specified users and applications can now be restricted, and Gateway tracing logs can be sent to a data pipe for use by other applications.

The company has also updated its host-based DB2-CICS Access Server. Release 2.0 provides the capability to have different instances with different processing characteristics. CICS shutdown processing provides a graceful shutdown of client transactions when CICS regions are being brought down, officials said. The update also fea-

tures emulation of Microsoft's Open Database Connectivity (ODBC) to support ODBC client software, as well as the DB-Library-compatible SQL Server front ends the gateway already supports.

"Support for the Microsoft/Sybase catalog stored procedures standard allows developers to build applications that will work transparently across DB2 and SQL Server, and make the Database Gateway an important platform for next-generation ODBC applications," said Gary Voth, senior product manager for client/server applications at Microsoft.

The Microsoft SQL Server 4.2 cursor API is also supported in Database Gateway 2.0. Database Gateway requires OS/2 and sells for \$4,295. Host component pricing starts at \$55,000.

Micro Decisionware, in Boulder, Colorado, can be reached at (303) 443-2706.

End PC Envy

A Window on the Network

As you can see, DOS programs run alongside Microsoft Windows programs. You've seen this all before in our DESQview, right? Yes, but now there's more. DESQview/X lets you access and control a wide variety of PCs and workstations through your own PC. This feature is called remote computing.

In the example to the right, Lotus 1-2-3 is running in its own 386SX PC. The window at top center is a DOS window running on a remote 486 PC under DESQview/X. Below left is a FrameMaker file running on a remote IBM R/S 6000 workstation in another part of the company.

Brand and Platform Freedom

DESQview/X runs on 386SX PCs and above. And from within windows on those PCs, you can use programs* running on any number of remote DESQview/X PCs if your network supports NetWare or NetBIOS. Add DESQview/X's optional network interface for TCP/IP networks and you can also access programs running on IBM RS/6000s to H-P 9000 to Sun workstations. And it works the other way, too: these workstations can view and use DOS and MS-Windows programs in their windows.

* DOS graphics programs currently run only on your local PC.



Works the Way You Want

You can change menus, add sub-menus. Add menu items that run remote programs. Change commands. DESQview/X gives you a menu to use for

your macros. And if you prefer a graphical desk top instead of a menu, DESQview/X's Application Manager gives you buttons for opening a set of programs used in a project or even for launching remote programs. What's more, you can specify window size and color. And if you are using DOS text programs, you can set them up so that the font changes size as you change the size of the window. We call this feature scalable DOS windows (see the Lotus 1-2-3 window at left).

Easy to Set Up and Administer

DESQview/X asks three questions: Do you wish to transfer files to and from other computers? Do you wish to use programs on other computers? And Do

you wish other people to have access to programs on your computer? That's all it takes for DESQview/X to set itself up. DESQview/X incorporates QEMM-386 to assure maximum memory utilization and Manifest for easy diagnosis and problem-solving.

Introducing DESQview/X for DOS.

Now everyone can access the power of the fastest PC—or workstation—on the network.

DESQview/X literally turns DOS PCs into graphical workstations. With DESQview/X, you can run DOS and Microsoft Windows programs simultaneously, view them in windows, transfer between them, create DESQview/X-global or program macros and manage your files. That makes computing lots easier, more productive, and more fun.

With DESQview/X, you can now run programs and access files on other computers on the network and view them in windows on your own PC. Distribute tasks among computers based on their capabilities and available resources.

Remote diagnosis and support is now a reality. With DESQview/X you can support, instruct; even remotely demonstrate programs right at your user's computer.

If you have X-Window workstations, our optional 'DESQview/X to Other X Systems' TCP/IP Network Manager allows you to run workstation programs remotely from PCs.

For all this power, DESQview/X is stunningly easy to set up and use, and can run on any 386 or 486 PC with as little as 4MB RAM and 40MB hard disk.

DESQview/X multiplies the power of networked PCs by erasing the boundaries between computers; between programs and between users. Welcome to the limitless future of enterprise-wide computing.

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	DESQview/X Network Mgr. (TCP/IP)			\$200.00	
	OPEN LOOK interface			\$200.00	
	OSF/Motif interface			\$250.00	
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California Residents add 8.25%					
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The good smell of E-mail

Bob Metcalfe's June 22 advocacy of electronic mail and the Internet was absolutely right on. It is especially delightful to see him promoting E-mail access to *InfoWorld* editors. Internet E-mail has many advantages: \$15-\$20 per month fixed fee access; no charge per word or per minute; no phone tag; no misquotes or incomplete messages; send and receive 24 hours a day; worldwide delivery in seconds to hours; computer-assisted search and retrieval based on any content. The list goes on.

E-mail is for the '90s as fax and cellular phones were for the '80s. In 1980 to 1982, few people were using fax or cellular. By 1990, most businesses and a great many middle-income individuals had one or both.

Get on-line or fall behind.

Jim Warren
Woodside, CA

The writer is the founder of InfoWorld.

I've read that the FBI wants to have the right to tap all networks. Seems like a lot of work. Why don't we just ask them for their E-mail address? Then our network systems gnomes can put into the servers a "forward message to FBI" for all messages sent or received. It would be transparent, they could monitor all communications, and we would be displaying our good citizenship. Imagine the volume of mail that would flood the FBI's E-mail inbound queues.

It would surely spark a smile on the faces of the disk salesmen who have the FBI account.

Gray Kent
Programmer
Research Libraries Group
Mountain View, CA

Bonfire of the Gossips?

Robert Cringely's June 29 criticism of New York seems to be based solely on the fact that it is a melting pot for the world's people and that it is expensive. The undeniable fact that New York is a magnet to the world, attracting the creative and the ambitious, contributes to the broad depth of cultural diversity that makes this city one of the most powerful and dynamic on the planet. This is something that we are proud of.

With regard to Mr. Cringely's second point, he clearly demonstrates his lack of travel savvy. Just like other world-class cities such as London and Tokyo, New York brings a lot of people into a small space—making it expensive. We think that New York is a great place to live and a great place to do business. Broadway and Wall Street are having their best years ever, the tall ships are in New York Harbor to celebrate the Columbus quincentennial, and millions go to work and school every day on energy-efficient mass transit. And FBI documents show the crime rate is far worse in other U.S. cities than it is in New York.

Some of us just plain like it here. We thrive on the energy that is generated

from the concentration of people and institutions within. This is what has made New York a great city and will continue to do so.

Cari G. Esposito
President
New York Oracle Users Group
New York

When IDC want to make sure that Robert Cringely gets the right story about our desktop operating systems research. Contrary to his June 29 column, our 1995 forecast shows DOS and Windows as the leading desktop operating systems environments. Unix does have an important, but minor, role in the desktop market.

Regarding IDC's original OS/2 forecast in 1987, mac culpa. I admit that the numbers we projected—more than 4.9 million copies of OS/2 shipped—are not what actually shipped. (IDC's actual 1991 figures for OS/2 are 503,000 copies shipped.) But IDC neither anticipated nor forecast that OS/2 would dramatically overtake DOS in either the United States or worldwide by 1991.

Nancy McSharry
Director, PC Software Program
International Data Corp.
Mountain View, CA

From bytes to bites

I read with interest and amusement Bob Metcalfe's article about the informal environmental impact study. A few months ago, I was agonizing over finding a way to rid the house of the stacks of trade journals I'd collected. It is easy to get rid of them—it's more difficult to get rid of them without guilt.

When spring finally arrived, I hit upon the solution. I simply shredded them in the wood shredder and added them to the compost pile for my garden. The season's first tomato came off the vine with 4 megabytes of RAM (Really Awesome "Mac").

Belinda Bennett
Greenwood, SC

Get the picture?

Several publications, including *InfoWorld*, have sent Fractal Designs a scary message: Painter doesn't fit into our established categories, so we throw it into the graphics category. In that grouping, it does poorly.

What these reviews fail to see is that the other graphics programs produce nothing but other people's work poured in. Painter is for doing your own work. Try doing your work in a standard program, and even a Nast or Parrish would look clumsy. The tool is clumsy.

So here we are, in a new kind of program that takes over computer art the way Bing Crosby took over "White Christmas" or Judy Garland did "Over the Rainbow." Fractal does the job so well that trying to beat it would be embarrassing.

I hope Fractal has the strength to keep on developing Painter and the guts to keep it drawing and painting

one's own art, leaving to the draw and paint programs the importation and manipulation of other people's art. May they keep their code clean and their bells and whistles quiet.

David Royce
Westport, CT

We agree that Painter is an unparalleled creation tool; we shall review it as a paint program in a future issue.
—Editors

Correction

In the June 29 product comparison of 50-MHz 486DX computers (page 68), the times in the multitasking benchmark chart do not correspond with the systems listed. The correct machines with their times are as follows: Tangent 450E posted the fastest time at 51 seconds. DataStar 486-50S has a time of 1 minute, 5 seconds. Compaq Deskpro 486/50M and Key 486/50 WindowsStation tied at 1 minute, 6 seconds. Tri-Win 50-MHz EISA Workstation posted a time of 1 minute, 11 seconds. ALR Flyer 32CLT 4DX/50 was 1 minute, 13 seconds. And Epson EISA Series trailed at 1 minute, 22 seconds.

Please write to Letters, InfoWorld, 155 Bovel Road, Suite 800, San Mateo, CA 94402, (415) Mail: 258-4127, CompuServe: 73267.1537. Letters can also be faxed to InfoWorld at (415) 558-1269. Please include your name, address, and daytime telephone number. Letters selected for publication will be edited for length and clarity.

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Samsung introduces a notebook and removable hard drive system whose time has come.



The NoteMaster 386SL/25 & NoteMaster 386SXL/25

See NoteMaster models from which to choose with Samsung's unique removable hard drive system.

And gone.



In seconds, your removable hard drive can go from Samsung NoteMaster to travel pouch.

And come.



into the DriveMaster Expansion Receptacle in your desktop PC.

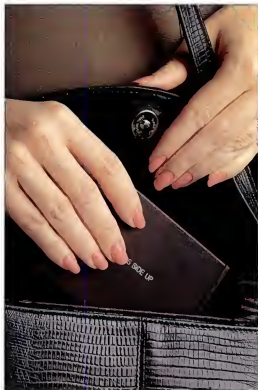


The 2.5 inch removable hard disk uses industry standard off-the-shelf drives that let you customize your storage capacity and your budget.

From notebook to desktop and back again. We've just revolutionized the way you work. Easily removed from your NoteMaster portable computer in seconds, this trim, compact, removable hard disk is ready to go from your notebook to your desktop. So now you can operate seamlessly, picking up in the office where you left off on the road, or vice versa. It's an amazingly simple way of transferring files, data and applications from your Samsung NoteMaster[®] computer to your desktop PC. With no bulky cables. No expensive docking stations. And no hassle. All it requires is one of Samsung's two state-of-the-art NoteMaster notebook PCs and the optional DriveMaster expansion receptacle. Then, you can quickly and easily slide the hard disk from the NoteMaster, and snap it directly into your desktop computer. No more time consuming file transfers, or out-of-sync databases. What you end up with is not only a much more versatile notebook, but a much more versatile desktop than you ever thought possible.

Intelligently engineered for the needs of today and tomorrow. The result is a smarter, more efficient way to work. Intelligently engineered by Samsung to support even the most demanding needs of today's business applications, you can easily upgrade the hard drive capacity of your NoteMaster for years to come. You choose the exact hard drive capacity you need, easily upgrading your drive without complicated installation or proprietary components. Your NoteMaster can even be set up with multiple hard drives, letting you create a pool of notebooks with separate drives assigned to different users. Using multiple drives also lets you build an entire library of hard drives, each with its own custom applications,

And gone.



into a handbag or briefcase,

And come.



or into another Samsung NoteMaster.

operating systems and file requirements. And we designed the DriveMaster[®] expansion receptacle to fit right into the standard 5¼" expansion bay of your IBM[®]-compatible desktop PC.

Security and Convenience. When you're between computers, the 3x5" removable hard disk stores easily in pocket, purse or briefcase, protected in its rugged housing, or by the padded carrying case that comes with the optional DriveMaster kit. People with tight security requirements can keep sensitive information under lock and key. But perhaps most importantly, you can now make better use of one of the most important assets in your personal computer, the hard disk drive. The Samsung system allows you to decide how to transport, utilize, design, upgrade and protect the information that you need the most.

Flexible and Reliable. It's reassuring to know that the usefulness of your NoteMaster can be extended well into the future. With features like a user-accessible coprocessor socket, a host of optional upgrades and plenty of room for additional RAM, your NoteMaster will undoubtedly keep you productive for years to come. With your choice of either an AMD 80386SL or an INTEL 80386SL 25MHz microprocessor, you have an advanced portable computer that gives you a new way of working that until now just wasn't possible. So when buying a notebook PC, choose the one that gives you the most utility, versatility and efficiency. After all, that's why you're getting one in the first place. Call 1-800-624-8999 Ext. 85CP for more information.



The NoteMaster 386SL/25 is NoteMaster 386SL/25 are state-of-the-art notebook PCs with a 25MHz, 386SX microprocessor and a 10.4-inch LCD screen that supports 64 gray scales.

It's about time you got more out of your notebook PC.



Working between your notebook and desktop is now as simple as sliding the removable hard drive out of your Samsung notebook and sliding it into the DriveMaster Expansion Receptacle in your desktop.

If you're still transferring data between your notebook and desktop via floppy disks, cables, tape transfer or docking stations, you're missing out on some very important things. Like productivity, convenience, security, versatility, upgradability and affordability, to name just a few. If, on the other hand, you had a new-generation Samsung NoteMaster with removable hard disk, and a desktop PC with our optional DriveMaster expansion kit, you'd be transferring data, files and applications back and forth in a matter of seconds. And you'll wonder how you ever got along without it.



NoteMaster 386SL/25

Microprocessor
Intel 386SX, 25 MHz

Memory
2MB RAM
Expandable to 8 MB via 2, 4, 6 MB modules
128 KB EPROM
544KB cache

Display
960 columns x 25 lines, 640 x 480 pixels
Black & white 10" LCD
C27 Backlit LCD
Supports 64 gray scales
256KB VRAM
Simultaneous video display

Internal Clock
Internal CMOS real-time clock/calendar with battery back-up

Storage
Removable 2 1/2" Hard Disk Drive supporting 60 MB and 120 MB or higher capacity
144 MB internal 3.5" floppy disk drive

Power Supply
NCLC rechargeable removable battery
7 amp/hourly support for NCLC, alkaline, or AC
External AC adapter
Battery operation 10 hrs
Battery charging 1.5 hrs

Keyboard
241 compatible 80-keys, 3 mm travel depth
Optional 1 cursor key
Threshold Numeric Key

Modems
2 MB RAM
Expandable to 8 MB via 2, 4, 6 MB modules
128KB EPROM

I/O Ports
1 parallel
1 serial
1 PS/2 compatible mouse or External Keyboard, Keyboard
1 External monitor

Dimensions & Weight
12" W x 8 1/2" D x 1 1/8" H
5.8 lbs with battery

Options
2450 baud modem
9600/2400 baud FAX modem send & receive
2, 4, 6 MB memory modules
Time battery pack
Stack Adapter
External Carrying Case
External Quick Charger
External Numeric Keypad

Other
DCS 50 included
NCLC utilities
One battery alarm
PMS Power Management System
Smart Sleep
Suspend Resume
SLIM 4.0 & 4.0 BIOS shadowing supported
1 yr limited warranty parts & labor

NoteMaster 386SL/25

Microprocessor
386/386SX, 25 MHz

Memory
2 MB RAM
Expandable to 8 MB via 2, 4, 6 MB modules
128KB EPROM

I/O Ports
1 parallel
1 serial
1 PS/2 compatible mouse or External Keyboard, Keyboard
1 External monitor

Dimensions & Weight
12" W x 8 1/2" D x 1 1/8" H
5.8 lbs with battery

Options
2450 baud modem
9600/2400 baud FAX modem send & receive
2, 4, 6 MB memory modules
Time battery pack
Stack Adapter
External Carrying Case
External Quick Charger
External Numeric Keypad

Other
DCS 50 included
NCLC utilities
One battery alarm
PMS Power Management System
Smart Sleep
Suspend Resume
SLIM 4.0 & 4.0 BIOS shadowing supported
1 yr limited warranty parts & labor

DriveMaster Optional Expansion Kit

Expansion Receptacle
1/10 One 1.25" Expansion Receptacle for IBM compatible desktop PC's. Inexpensive, available 2.5", externally accessible drive bay

Controller Card
1/10 One smart Controller Card for secondary drive support. Requires available AT expansion slot

Cables
3M required IDE/Power connectors provided

Driver Casing
Plastic 2.5" drive casing with pins connecting edge adapters provided for Cannon, Western Digital, and Quantum 2.5" IDE Hard Disk Drives

Protective Carrying Case
1/10 One padded soft protective carrying case for drive storage & transport

Mounting Bracket
1/10 required mounting bracket provided

Installation Requirements:
The IBM compatible PC with one externally accessible 2.5" and available drive bay
MS-DOS 4.0 or higher operating system
One available AT expansion slot for installation of Controller Smart Controller

Easy Install Kit
Self-contained and instructions provided, one time installation, easy to follow diagrams and installation steps

Distributors
Gates/PA Distributing, Inc. 1 (800) 332-2222
Ingram Micro 1 (800) 456-8000
Microware Distributors 1 (800) 777-9511
Robec Distributors 1 (800) 223-7081
TechData Corporation 1 (800) 237-8931

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Access: 1 (408) 940-1881 / Link International 1 (516) 454-4230
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From the Ether / Bob Metcalfe, Publisher

Frame Relay is now able and ready to internetwork LANs

Maybe you want me to shut up about networking — my life's work — leaving the whole jargon-encrusted subject to the specialists who read *Network World*. Or, maybe these days good news is OK anywhere you find it.

You may recall my recent tirade against the telephone companies for mistreating our personal computers and LANs as just so much low-grade customer premises equipment (CPE), and for greedily designing their Integrated Services Digital Network (ISDN) with too many integrated services that they have failed to deliver and too few digital networks — which is what New Age IS really needs. This time I have some good news about the telcos. They are taking a step in the right direction with a new service called Frame Relay.

I recently attended a seminar in San Francisco given by MCI. The invitation promised an assessment of our economy by a noted economist and — oh, by the way — briefings on MCI's hottest products. The economic assessment was "hardly optimistic" of course, but the briefing on new data services was totally excellent.

First, without knowing I was in the audience still steamed about computers being called CPE, John Nitzke, MCI's senior manager, data engineering, redefined CPE to mean that boring equipment leased by MCI to its customers so they can connect their really important stuff into MCI's networking services — fine. And then he launched into a description of Frame Relay and how it fits



into the future of data networking.

In the past there were telco circuits, analog and then digital, dedicated and then switched. These were good for voice, but wasteful for carrying bursty computer data. Then came packets through private routers and then public X.25, which were themselves bursts of data and therefore better for computer WANs. Now we hear about frames relayed through telco transmission facilities, like you-know-what through a goose, to meet high-volume, high-speed, low-delay, and low-cost requirements of LAN internetworking. This is Frame Relay's "killer app," said Nitzke, borrowing stylishly from our jargon.

Frame Relay is good news for several reasons. First, Frame Relay is a service that at its very core recognizes that you and I have personal computers, LANs, and maybe soon full-blown internetworked client/server computing — not dumb terminals anymore. Second, Frame Relay, learning a lesson from ISDN, integrates fewer services (as compared with X.25, for example) and is almost pure digital networking. Third, Frame Relay has been standardized so that many vendors can compete to provide it. Fourth, and best of all, Frame Relay is available right now — and from MCI in a few weeks, Nitzke implied.

Telco equipment suppliers like AT&T, Northern Telecom, Siemens, and StrataCom are lining up behind Frame Relay. Service providers like AT&T, CompuServe, MCI, Sprint, and WitTel are lining up behind Frame Relay. And LAN internetworking companies like 3Com, Cisco, Proteon, and Wellfleet are lining up behind Frame Relay.

By lining up I mean shipping soon if not already. MCI tried to put Frame Relay in context. In its grand picture, there were Ethernets (and some other LANs) on the left at about 4-10-16 megabits per second (mbps). Connecting them together to the right was FDDI as a city-area network (CAN) at 100 mbps. Right of FDDI was Switched Multimegabit Data Service (SMDS, 802.6) forming a metro-area network (MAN) at 45-150 mbps. And then on the far right, a so-called "cell-switched" WAN at 45-15-622 mbps. Frame Relay, it turns out, is an MCI service providing public access into its asynchronous transfer mode (ATM) cell-switching backbone fabric.

Such a complicated hierarchy is hardly inevitable. The next step is interconnecting Ethernets through routers via Frame Relay and then maybe via direct cell-switching ATM.

Go get the details on Frame Relay's good news directly from these suppliers, or ask your networking expert if you have one. And let me know if you find Frame Relay better or worse than I've led you to believe. In the meantime, I'll try to find out if there is any deep meaning in saying that messages are forwarded, packets are routed, frames are relayed, and cells are switched.

Bob Metcalfe is publisher of InfoWorld. He invented Ethernet at Xerox PARC in 1973 and founded 3Com Corp. He receives E-mail via the Internet at Bob_Metcalfe@InfoWorld.com or at 524-1127 on MCI Mail.

Peer to Peer / Jeff DeBalko

InfoWorld IS learns the lessons of downsizing from first-hand experience

Jeff DeBalko is the Director of Information Systems for InfoWorld. He can be reached at Jeff.DeBalko@InfoWorld.com through the Internet.

You read a lot about downsizing in the pages of *InfoWorld*, but what you might not know is that *InfoWorld* is in the middle of our own downsizing project, evaluating new publishing technologies.

Our nine-year-old AteX publishing system is obsolete, costly, and inefficient for publishing a modern newspaper. In July 1991, after 18 months of research, we decided to completely replace AteX. We chose to build a new publishing system in-house using an open, multiplatform solution that integrates Microsoft DOS, Microsoft Windows, Apple Macintosh, and Novell NetWare.

We have three goals for the project. First, we needed — and wanted — to use modern publishing technology that could be integrated into our existing enterprise systems. We wanted to use DOS and Windows for writers and editors, and the Macintosh for copy editing and layouts, with the eventual goal of giving users their own choice.

This kind of system eliminates the need for AteX specialists, who are becoming harder to find and very expensive. Management and support of the publishing system will be handled by

our PC/LAN staffers, who are trained and experienced with our current enterprise systems. As a result, we should be able to provide more comprehensive support and better backup. And, when the time comes, it will be easier to recruit more people.

Our second goal was to provide our editorial staff with modern publishing tools. Our current system is a text-based system that requires intricate programming to place items and objects on a

The rewards of enterprise solutions are worth the pain.

page. Working in a WYSIWYG environment will increase productivity and save time and money.

Our third goal was to save money. The AteX system, like almost all large systems, is expensive. In addition to specialized staff, the AteX requires expensive maintenance contracts and service calls. By integrating our publishing and enterprise systems, we will eliminate the need for these expensive services.

The new system will also allow us to send full (or nearly full) PostScript pages directly to our printer, saving us tens of thousands of dollars each year in prepress costs. Although most of you are not in the publishing business, I believe that you will find similar savings in your own downsizing projects.

We have been asked many times what prompted us to downsize. The answer is control. Not classic MIS centralized control, but the control that downsizing gives our customers (the entire *InfoWorld* staff). The proprietary nature of the AteX system limited our ability to implement creative solutions for our customers. We were limited to what AteX thought was best, not what our customers thought was best.

The new system will give us the flexibility to implement new, multivendor, nonproprietary solutions to our business problems, so we will be able to react quickly to technology problems or bottlenecks. Most importantly, we can react to what customers need and demand.

What are some of the lessons learned from our downsizing project? Well, first of all, things take longer than you would expect. Right now *InfoWorld* is producing about eight to 10 pages on our new publishing system. We hope to use it for the entire paper by the end of the summer. Fortunately, AteX is a reliable sys-

tem that gets the paper out on a weekly basis, so we are not pressured into a faster-than-prudent conversion.

The second lesson is that the personal aspects of change are critical. You must involve as many users as possible in the decision-making process. We created a focus group of the key players in the production of *InfoWorld*. The group met several times to review our options early in the project. When it came time to implement the system, there was a sense that everyone had given significant input during the process.

The third lesson is to focus early and often on training. You can never invest in too much of it, and you must insist on commitments from department managers to make it happen.

The real message is that the rewards of implementing open, multiplatform enterprise solutions are worth the pain. These solutions give your customers more control, and thus giving them more opportunity for being creative and productive. And that is what being a New Age IS manager is all about.

"Peer to Peer" gives readers a forum for discussing computing and management issues. Send submissions to Rachel Parker, Executive Editor of Opinions (MCI Mail 340-4371). Submissions can also be faxed to (415) 358-1269.

ENTERPRISE COMPUTING

Internetwork routing enhancements planned for NetWare

Novell brings NetWare into the distributed computing environment

BY KARYL SCOTT

In its push to dominate the enterprise computing market, Novell is poised to announce in August significant enhancements to its NetWare Multi-protocol Router.

Key among the improvements will be support for additional transport and routing protocols and new wide area connectivity options, says Navindra Jain, vice president and general manager of the Novell internetwork products division, in San Jose, California.

A key ingredient to an enterprise architecture is the ability to link multiple and disparate systems into a coherent whole. Novell has been gradually putting together the technology that will enable it to offer enterprise LANs that are capable of supporting distributed applications running across a variety of computer systems. Internetworking and multi-protocol routing are essential building blocks.

Long a leader in departmental networking, Novell is preparing products that it hopes will allow it to capitalize on the emerging internetworking market. A more robust internetwork router is the first step in this direction, says Dick Boyle, program director with the Stamford, Connecticut-based Gartner Group.

The internetwork router market is expected to grow between \$550 million and \$950 million within the next two years, according to market research from companies such as International Data Corp. of Framingham, Massachusetts, and Forrester Research of Cambridge, Massachusetts. Analysts predict sales of 30,000 routers by 1994.

The major players in the field are Cisco Systems Inc., Wellfleet Communications Inc., Digital Equipment Corp., Proteon Inc., and 3Com Corp.

Novell will join the ranks of these market leaders with an aggressive rollout of internetworking products and features over the next 18 months, according to sources familiar with Novell's plans.

INTERNETWORK BUILDING BLOCKS. Bridging and routing have long been integral features of the NetWare operating system—a little-known fact to many users. But earlier this year, Novell unbundled the bridging and routing features from the network operating system and began selling the NetWare Multiprotocol Router-Basic, Version 1.0 as a stand-alone software product.

The purpose behind this decision was to offer customers the option of off-loading router processing from network file servers.



PHOTOGRAPH BY BEN BARNETT

NetWare Multiprotocol Router-Basic

PROTOCOL SUPPORT

IPX
IP
AppleTalk
Novell NetBIOS

LAN SUPPORT

Ethernet
Token Ring
LocalTalk
Arcnet
FDDI

ROUTING PROTOCOL SUPPORT

IPX RIP
IP RIP
AppleTalk RTMP

PERFORMANCE ENHANCERS

Burst Mode NLM
Large Internet Packet
Exchange NLM
Service Advertising Filter NLM

SYSTEM REQUIREMENTS

386 or 486 PC with 4 megabytes of RAM and 20-megabyte hard disk
Open Data-Link Interface network adapter card
NetWare Link/64 or Link/TI for wide area connections

Conde Nast Publications in New York implemented the MPR to connect 1,400 PC and Macintosh users between two buildings in Manhattan. Conde Nast currently has 37 NetWare file servers and decided to move the routing functions of these machines and onto a dedicated PC, says Mike Lake, manager of PC support with the firm, which publishes such magazines as the New Yorker, Vanity Fair, and Vogue.

The router runs on an NCR Corp. WaveLAN radio LAN that transmits traffic between two buildings on 44th and 45th Avenues. The wireless LAN and the NetWare MPR allowed the firm to eliminate a T-1 line at a savings of \$600 per month.

"We're primarily a NetWare shop and needed a way to let our Macintosh users send mail and files to DOS users over multiple NetWare servers," Lake says. "So far, we haven't been much of a hiccup. The router is working great."

The router gives LAN administrators the option of segmenting LAN traffic to optimize network bandwidth and performance, provide security, and control user access to various LAN resources. For example, a LAN administrator could install the MPR in his company's accounting department to contain traffic to that particular LAN segment and to keep unnecessary traffic from going onto the corporate backbone network.

A common router feature that the NetWare MPR supports is the ability to connect LANs of dissimilar media such as Ethernet, Token Ring, LocalTalk, and Arcnet.

The NetWare MPR is not designed to compete with high-end multiprotocol routers from companies such as Cisco and Wellfleet. These heavy-hitters provide routers that are traditionally found in corporate backbone networks that run a myriad of LANs and transport protocols. Cisco's routers, for example, support 19 protocols and run on custom-designed hardware that has been optimized for communications processing, says Doug Tsui, Cisco marketing manager.

For customers just starting to explore internetworking, the NetWare router is a fine solution, Tsui says. Users can put the NetWare router on a PC server running other LAN and communications services as well, which makes it a flexible and economical solution. But for high-performance routing, PC hardware isn't going to be able to route the number of packets per second that a customized router can.

The NetWare router sells for \$995 plus the cost of the PC and WAN interface software. The entry-level Cisco IGS router sells for \$5,000 and supports many of the same features offered in Cisco's top-of-the-line routers, such as all 19 protocols.

A recent benchmark test by LanQuest in San Jose, California, compared the throughput of the NetWare MPR running on a variety of PCs and network interface cards. Performance ranged between 481 packets per second (pps) with a packet size of 4,096 bytes on a 16-mbps Token Ring LAN operating at 98 percent bandwidth utilization to 8,354 pps with 64-byte packets on a similar LAN, running at 27 percent utilization.

RISE TO THE TASK. Novell hops to meet customers' internetworking requirements by supporting additional industry protocols in the upcoming release of the multiprotocol router, including Digital Equipment Corp.'s DECnet, IBM System Network Architecture, Apple Computer Inc.'s Datagram Delivery Protocol, and the Open System Interconnection Connectionless Network Protocol.

Other planned enhancements include support for various router-to-router communications protocols, including the Open Shortest Path First (OSPF) protocol used in TCP/IP environments and the AppleTalk Update Routing Protocol (AURP). NetWare MPR currently supports the Routing Information Protocol (RIP) for IPX and IP networks and the Apple Routing Table Maintenance Protocol (RTMP).

Novell will also introduce its own router protocol—the NetWare Link Services Protocol—which will be a link-state protocol similar to OSPF and AURP. Link-state protocols keep a record of the condition of the entire network at each router. They only exchange routing information when a change occurs. These change updates are propagated rapidly throughout the network.

RIP and other distance vector protocols allow routers to learn about network topology from neighboring routers. RIP and RTMP don't allow routers to understand the condition of the entire network at any given moment in time and changes are not propagated rapidly across routers. RIP allows only 15 hops between the source and destination of a packet. This is insufficient in extremely large networks. Link-state protocols, on the other hand,

support many more hops and much larger networks.

Novell also plans to expand the variety of WAN interfaces supported for internetworking and will offer them in a single package. In addition to T-1 and 64 kilobit-per-second service, future products will also support X.25, ISDN, the Point-to-Point protocol (for serial connections), Frame Relay, and Switched Multimegabit Data Service.

In the area of bridging, Novell will add Ethernet transparent bridging and Source Route Bridging for Token Ring and FDDI networks.

PERFORMANCE ENHANCERS. Novell bundles three software packages with the MPR to enhance the performance of routed networks: Burst Mode NLM; Large Internet Packet Exchange (LIPX) NLM; and Service Advertising Filter (SAF) NLM.

The Burst Mode NLM implements a sliding window technology that enhances the performance of the NetWare Core Protocol (NCP), which was originally designed and optimized for bursty LAN traffic. When an NCP packet is sent out, the server waits for a response before sending other packets.

Burst mode allows up to 64K of data to be sent from workstation or server before requiring a receipt response. This is particularly important in the WAN environment, where longer delays are typical.

The following environments are well suited for burst-mode technology: LANs using telecommunication links that provide high-speed transmission but have long propagation delays, such as satellite links and X.25 packet services; highly segmented networks that use many bridges and routers; and systems sending large files.

LIPX lets users vary the size of packets transported over the network to best suit the type of communications link being used. If the line is very error prone, such as a long link, small packets (half a kilobyte) are best. With a reliable link that has long delays, large packets (4K) are best. LIPX lets the network administrator determine the appropriate packet size.

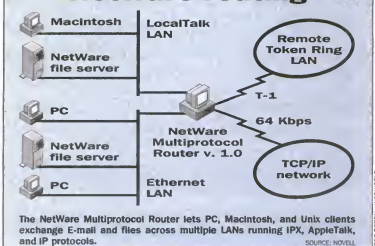
SAF reduces the number of Service Advertising Protocol broadcasts over an IPX internetwork. Workstations traditionally learn about network services when LAN servers broadcast information about those services. By limiting these broadcasts, more bandwidth is freed up for other types of network traffic.

EASE OF USE. Installing a NetWare MPR is similar to installing and configuring NetWare file servers, so LAN managers don't need to learn a new set of routines. According to Phil Wells, R-Console consultant to the Watson Clinic in Oakland, Florida, all he had to do to get 10 routers up and running was to install the server executables to floppy or hard drives, install the protocols, and bind the protocol stacks to the network interface cards.

The router can be managed using the standard NetWare R-Console utility, TCPCon and ATCon are added utilities for monitoring the performance of IP and AppleTalk traffic. The routers also support the Simple Network Management Protocol (SNMP) and Management Information Base 1 (MIB 1) and can be managed by third-party systems through these standard interfaces. □

Karyl Scott is the executive editor of the Enterprise Computing section of InfoWorld.

NetWare routing



Traditionally, NetWare has kept a routing table on the file server to use as a reference when routing requests were made. Every packet destined for another network, as determined by the network address, would be processed by the server, checked against the routing table, and sent to its appropriate destination.

In networks where multiple departmental systems are linked and much traffic is routed between these systems, a dedicated router ensures better network performance.

Now NetWare customers can dedicate a 386 or 486 PC to the task of routing traffic between multiple departmental LANs. Customers also have the option of running the router in conjunction with NetWare communications and hub services on a single PC server.

MPR, Version 1.0 is a rudimentary internetworking product that supports native NetWare IPX, IP (as in TCP/IP), AppleTalk, and NetWare NetBIOS transport protocols. It is designed to connect two or more departmental LANs. MPR is also capable of routing IPX traffic over wide area communications links such as 64 kilobit-per-second and T-1 (1.544 megabit-per-second) carrier services. NetWare Link/64 and Link/TI software is required to connect to wide area telecommunication services.

MPR cannot route IP, AppleTalk or NetWare over WAN links, although this shortcoming will be rectified in the next major release of the product, according to Novell's Jain.

The NetWare router is designed as an entry-level product for NetWare customers running DOS, Macintosh, and Unix clients on a LAN. A Macintosh client on a NetWare LAN, for instance, can send electronic mail or database files to a Windows user on another NetWare system, which is interconnected with the multiprotocol router.



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ENTERPRISE COMPUTING / MANAGEMENT

Center for Missing Children adopts multimedia tech

BY ALICE LAPLANTE

A picture is worth a thousand words — especially when missing children are concerned.

By October 1992, the National Center for Missing and Exploited Children (NCMEC) will have a PC-based multimedia system in place that will send high-resolution photographs of missing children to law enforcement agencies around the country within minutes, if not seconds.

This might not sound like such a big deal in terms of technology — computer-savvy companies around the world have had the capacity to do this kind of electronic transmission of images for years.

But what makes this particular imaging application different is its accessibility.

Because the National Center deals with such a broad range of agencies around the world that are concerned about missing children — from the FBI and major metropolitan police departments to storefront volunteers and concerned relatives — they had to consider the lowest common technical denominator.

After all, it would do little good to have a sophisticated high-end imaging system in place at the National Center's headquarters outside of Washington if a police officer in Bannock, Montana, couldn't access it.

Thus, the system was designed to deliver the highest resolution images possible to any Group 3 fax machine in the world.

The implications are staggering, according to Ben Ermini, director of case management of the NCMEC. Previously, the quality of fax machines made it a poor solution for transmitting photographs. They arrived at the destination fax machine intact but unrecognizable. For the purposes of identifying missing children — some of whom have been in NCMEC's files for upwards of five years — the photographs would be virtually useless.

Therefore, NCMEC used overnight delivery services to send packages containing photographs and other relevant material to interested parties. In addition to being costly, this method was often not timely enough to do any good.

"The timing is extremely important, because police can only hold a possible missing child and suspected abductor for a certain time without some proof of the child's identity," Ermini says. Now, with many police departments outfitting their patrol cars with portable fax machines, police can have photographs and pertinent data in their hands within seconds of sighting a possible missing child on a city street corner.

NCMEC spearheads national efforts to locate and recover missing children. As a nonprofit group established by Congress in 1984, the National Center works in cooperation with the U.S. Department of Justice to coordinate efforts to reduce crimes against children.

The statistics are impressive: To date, the National Center has provided assistance in more than 29,000 missing- and

exploited-child cases, with more than 19,000 of those children being located. The bad news is that 9,000 children are still missing.

The National Center had been attracted to the idea of being able to transmit photographs and text electronically but needed a system that could deliver image and text files to other systems as well as to standard fax machines. Moreover, cost was an issue: The system currently being implemented works on standard 286-based DOS PCs with VGA monitors and



NATIONAL
CENTER FOR
MISSING
& EXPLOITED
CHILDREN

off-the-shelf fax boards and fax machines. Virtually anyone with a standard PC can run this system.

The system has also had an unanticipated benefit for the missing-child: the ability to create the missing-child "slicks" or posterlike packages of photographs and text that appear everywhere from road signs to milk cartons, for media distribution.

Previously, the posters had to be camera-ready prints, which required that the Center send them to professional photographic and publishing houses. This was expensive and took approximately three weeks between finishing a slick and having it ready for distribution.

With the new system, the slicks are prepared in-house in a matter of hours, and the face and facts of a missing child can be disseminated throughout the country within 24 hours of the missing child report being issued.

"In the cases where we have progressed the photos, we will put the original photo, the enhanced photo, and all relevant data on the slick — and it's ready to be sent out almost as soon as we have the missing-child report in hand," Ermini says.

The system has been tested — with several of the 43 clearinghouses that the National Center works with around the country — with spectacular results, Ermini says. The system is expected to be in full implementation by October 1992.

The project was the brainchild of Paul Gardiner, director of business development for Intellihit Corp. of Vienna, Virginia, a manufacturer of hardware modules for compressing digitized speech. Although his firm's products are generally used as components in telecommunications networks and digital multiplexers, a recent business alliance with a multimedia firm gave Gardiner the idea.

"I'd been reading about the Center, and as I have three children of my own, I was very interested in their activities," Gardiner says. He paid a visit to the National Center several years ago to view their operations and ever since had been

mullying over ways that technology might be used to help their efforts.

"Last year, we formed a business alliance with Applied Multimedia Techniques, a multimedia development and consulting firm in Atlanta, and it was suddenly apparent to me that we could design a very unique program for the Center using low-cost off-the-shelf components," Gardiner says.

In the fall of 1991, Gardiner paid a visit to Ben Ermini and the National Center's MIS director, Bob Thomas, and showed them initial screen designs. "I asked them if they thought the system would be of use to them, and when they said yes, went ahead and refined the search software according to their input," Gardiner says.

One of the basic features of the application is that it allows users to rapidly narrow down a number of possible missing children by specifying such attributes as sex, eye color, and race. Then users can rapidly browse through photographs to see if they have a match. Up to 27 high-resolution photographs can be displayed on the screen at one time, and if one of the photographs looks familiar, a touch of a key will bring up that child's master file, Gardiner says.

Although there are a number of options on how photographs can be captured and stored into the database, the recommended method is to use a standard off-the-shelf Camcorder to zoom in on a photograph. The video signal is then input into the PC using a board called FrameGrabber, which digitizes the image. A software algorithm compresses the digitized image and stores it in a file, where it is tagged with a unique six-digit

ID number that is used to identify that particular missing child throughout all subsequent National Center activities. Text is then entered and merged with the photograph to give a complete record of that child.

Now that this system is up and running, Gardiner believes there will be other applications for the technology, such as real estate, insurance asset cataloging, and stock-photo databases.

Last week, there was another significant announcement that will benefit organizations and law enforcement agencies dedicated to locating missing children.

Sony Corp. and the NCMEC announced a joint program that combines the use of Sony's Data Discman Electronic Book Player, a hand-held CD ROM system, with the Center's database. Sony will offer the Discman at a discounted price to any agencies involved in missing children activities and will also provide a free CD ROM disc containing current National Center files on missing children. Both photographs and text will be retrievable from the disc, along with a U.S. Justice Department database listing local clearinghouses to contact for additional information on each child. The CD ROM disc will be updated quarterly; at the end of the first year, organizations can renew their subscription to the CD ROM service by paying \$20, which will cover disc-mastering and distribution costs.

For further information on NCMEC, call (703) 235-3900. □

Alice LaPlante is a Palo Alto, California-based writer and former InfoWorld editor.



Ben Ermini is a director at the National Center for Missing and Exploited Children.



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IS Profiles / Alice LaPlante



Job performance is often rated by how much money you save

As the economic doldrums continue, people are understandably concerned about job security. But there's good news for PC professionals: An increasing number of savvy PC managers are solidifying their jobs by saving their employees hard cash.

This is what Rick Jacobson and colleagues recently did. As a PC technician/analyst at Hormel Corp., a Fortune 500 food services and marketing company based in Austin, Minnesota, Jacobson spearheaded a project that saved his company a quarter of a million dollars in the first year alone. Estimates of future savings are as yet undetermined, but Jacobson expects them to be significant — perhaps as high

presentations and documents for customers. Jacobson gathered the logos and other relevant customer data and scanned them into the system. This allowed sales personnel to create literature that addressed each customer's specific needs. For example, each salesperson has a stock of preprinted color photos of the company's products. Previously, the back of these photos were printed with product specifications and prices. But because sales prices and prices varied from season to season, this literature was often out of date. Now, the salesperson can insert one of these photos (which are blank on the reverse side) into the printer, and add customer logos and information that will help make a sale to a particular client.

The system can also be used to create newspaper ads.

Best of all, the system finally has

PCs. A 19-year Hormel employee, he has worked in a variety of capacities. He worked for six years as a keypunch operator and then another six in the mainframe operations division, which he says "[was like] being a Maytag repairman. Most of the time I was just waiting around for something to go wrong, so I could fix it."

To kill time during slow periods, Jacobson started playing with PCs. Then, two years ago, he moved into his current position with Hormel's information center. He's enjoying it tremendously.

"There's always something new going on," Jacobson says. Moreover, he feels that his job is more secure — particularly when he gets to implement such obviously successful projects as the one just completed.

"Increasingly, the mainframe is being used as just a huge file server, and mainframe operations are being automated at a very rapid pace," Jacobson says. "But since I've been working with PCs, we've tripled the number of computers we've put on people's desks, worked to set corporate standards, and provided training to ensure that the technology is being used."

BENCHMARK EXPERTS. There's a new IS job category that a number of companies are adopting, which sounds particularly intriguing.

Called "benchmarking consultant," this position involves researching how other companies are using technology for competitive advantage and trying to implement appropriate ideas.

Michael Rainger is about to embark on a new career as a benchmarking consultant for his firm — a prospect which excites him.

Currently the manager of business information systems for AT&T Paradyne, a maker of data communications products based in Largo, Florida, Rainger starts his new job on July 11. It will involve checking with IS departments at other firms — even those in unrelated industries — to see if their application of information technology might be appropriate to his organization.

"For example, if we want to improve our distribution system, it would make sense to look at Federal Express," Rainger says.

Because this is a brand-new position, Rainger will be able to virtually create his own job description: "I can make the job whatever I want, as long as I make it successful."

Rainger recently completed a project that involved measuring employee productivity throughout AT&T Paradyne's IS department. Using MicroMan project management software from POC-IT, Rainger and his staff developed an application that would track the time each IS employee spent on individual development projects. The goal is to get up-to-the-minute figures on IS project costs.

The new application proved highly useful, Rainger reports. For one thing, he discovered that IS employees were spending too much time on activities that couldn't be allocated to a specific project. For example, IS employees were spending 18 percent of their time in meetings alone — leading to a 1992 goal of reducing the number of staff meetings.

AT&T Paradyne used to have two separate project management systems in place: one for managing a mainframe and another on a LAN. Important data was entered into and summarized on each system. But to get a complete picture of time spent on individual projects, it was necessary to refer to separate printouts, Rainger says.

The advantage of the new MicroMan-based system is that all the data is input and analyzed in one application.

Rainger's IS department has been tracking IS productivity and project data for six years. "We wanted our customers — end-user departments within AT&T Paradyne — to understand the cost and effort involved in the projects they were requesting IS to perform."

Up until two years ago, AT&T Paradyne had a charge-based IS system, where individual business departments were charged for the IS resources they used on a project basis. Then, a change in IS management dictated the end of the charge-back system.

"This was a big mistake," Rainger says. "If IS services aren't free, users will think twice about what they ask for. This makes business users think about the applications and projects that will be most valuable to them, as well as the most appropriate use of IS resources."

Steps have been taken to replace the charge-back system by the end of the year. The new MicroMan project management application will be a cornerstone in the new policy, ensuring that departments are accurately charged for the IS resources they utilize.

Alice LaPlante is a Palo Alto, California-based writer and former InfoWorld editor.

"We wanted to allow the nontechnical people in marketing to be able to update the information in the marketing literature without help from IS."

Rick Jacobson

as \$100,000 annually. Best of all, this was done using standard PCs and off-the-shelf software.

The project was initiated at Hormel's meat products division. Of Hormel's more than 10,000 employees, who are spread among eight divisions, the meat products division has the largest marketing staff, with 45 district and regional sales offices across the United States.

The division faced the challenge of making sure its sales force had up-to-date sales information and literature. In the past, the field sales force had depended on printed manuals and brochures to disseminate product information, even though such materials were rapidly made obsolete by an ever-changing market and product line.

"The last time we updated our product manual was over eight years ago, because the cost of doing so was so high," Jacobson says. "We wanted to find a system that could be updated every quarter at the very least. At the same time, we wanted to find something that was cost effective and had the same quality as the four-color brochures our sales people hand out to customers."

One of the requirements of the new system was that nonprogrammers could update it, Jacobson says. "We wanted to allow the nontechnical people in marketing to be able to update the information in the marketing literature without help from IS," he says.

Jacobson chose Harvard Graphics as the authoring tool and put Hormel's sales manual, which contained more than 700 charts and graphics covering the division's product lines, into an application using Harvard Graphics' HyperShow feature.

Now, instead of relying upon outdated printed materials, Hormel's sales staff can access the system and print out any literature they need.

They can also create customized sales

inspired more widespread PC use among Hormel employees, Jacobson says.

"So many people in the field who used to leave it up to their secretaries to do their work are finally sitting down at the computer," Jacobson says. "It's making them more aware of the possibilities, and they are starting to use other applications."

Initially, the system saved Hormel \$250,000 in printing costs alone. Subsequent savings due to reduced paper usage and shipping are expected to be significant.

Jacobson was brought into the project by the meat products division as a consultant. Because his job at Hormel is in the information center and involves evaluating hardware and software for various user departments, he was asked to find an authoring tool that could solve this specific business need. Jacobson then worked with a team of outside writers and consultants to put the appropriate text and screens together. Now Hormel is looking to use the system in other marketing departments throughout the company.

Jacobson is a fairly new arrival to



Rick Jacobson, a PC analyst with Hormel, equipped the sales force with up-to-the-minute marketing information.

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New Age IS / Cheryl Currid

The verdict is in: Clones still play second fiddle to name brands

Over the past few months, as my colleagues and I reviewed readers' repair logs and success/failure stories, we found that clones have found a place in lots of big organizations. And, I'll concede, nameless computers don't

always crash and burn (or even go snap, crackle, and pop) immediately upon delivery to a corporate environment.

In fact, there are many happy campers who buy the nameless and shameless PCs and claim large savings on low-priced hardware.

Frankly, however, even after reading many successful clone stories, I'm still

not convinced that clone strategies are right for everyone. Here are some gotchas that keep me cautious:

- **Compatibility.** Garage-A-Tronics clones can't always run all software. It turns out that many clone-happy campers aren't pushing the edge of the technology envelope.

Looking at the responses to Currid's

Clone Challenge, those folks were for the most part running single-function, stand-alone, standard DOS software, such as vanilla versions of Lotus 1-2-3 and WordPerfect.

Compatibility problems cropped up with users who were more aggressive and pushed technology to its limits. For example, organizations deploying Windows 3.1 on Novell LANs with 3270 emulation products and those with network connections to SQL database servers reported hiccups with Local Larry's Garage-A-Tronics clones. In fact, many complex memory management or tricky configurations turn into clone killers.

As a result, clones—especially home-brewed boxes—take their toll on technical support staffs. The no-names are not impossible to support, but they do require more time and work. And that costs money, often making up for the savings on the purchase price.

- **Reliability.** Here again, Currid's Clone Challenge saw mixed results. Not all clones are created equal. Some clones fell over fast while others never failed. In fact, a couple of readers wrote in to say their PC fleets of unknown origin had never faltered.

Many success stories were based on the fact that these IS managers knew their clone vendors. Some clones are doing a very respectable job of putting in quality components. This helps. But, let buyers beware. It's what's inside the box that counts, and sometimes the contents change without notice.

Some readers reported that things were fine for a while. Then they experienced failure rates of 30 percent to 50 percent to 100 percent. Can you imagine taking delivery of 100 PCs with a 100-percent failure rate? Even if the vendor made good and took back all of them, think of the administrative time in repacking, shipping, and waiting for replacements.

- **Price-war casualties.** The war has started and the big guns are firing. Compaq fired the first salvo with its sub-\$500 Prolinea computers. Dell shot back with its Dimension line plus a 20-percent price cut, and IBM lurks over the next hill—rumored to have heavy artillery.

Weak cloners, whose margins are mighty thin to start with, won't survive this battle. The market is getting so tough that analysts have begun to target companies on deathwatch. Andrew Neff of Bear, Stearns & Co. has instituted a regular report called the "Shakeout Watch" to list casualties. And, in a recent *Business Week* article, Intel president Andy Grove was quoted saying: "There are 500 suppliers— and 450 should exist."

If your company has made an investment in one of the dearly departed clone manufacturers, you could be on your own to keep them going.

So, if you are a corporate computer buyer, the choice is yours. Some think clones are fine, but Currid doesn't. End of subject.

Cheryl Currid, president of Houston-based Currid & Co., focuses on helping clients assess, apply, and organize for new information technology. Her CompuServe address is: 75300,2660.

Not Just Another Rubber Stamp



You see so many marks of approval in the computer products marketplace today, you have to wonder what they really amount to.

After all, an "Analyst's Choice" doesn't mean much if the analyst who picked it has computing priorities and performance criteria different from yours. And when you see things like "MVP" and "Award of Distinction," don't you sometimes wonder what they actually mean?

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M I C R O G R A F X ®

ment capabilities. For starters, it covers the basics quite well. You can tag files for mass copying, moving, or deletion. If you're using a mouse, the program's drag-and-drop feature lets you copy selected items by dragging them to their new location. To move instead of copy, hold down the Alt key while dragging.

Desktop can handle entire directories with the same ease as a single file and can move files or directories across drives, a feature that even the highly regarded XTree Gold has yet to provide. Unlike many file managers, Desktop allows you to invert tagged files, which can be handy if you're copying groups of files to different locations. Desktop also lets you compare the files in two directories, automatically highlighting the different files in both.

The program also gives you good control over the file manager's display. You can "filter" directories to show files by type (program, document, etc.) and by attributes (read only, archive, system, and hidden). Beyond that, you can control what's shown in the highly regarded XTree Gold has yet to provide. Unlike many file managers, Desktop allows you to invert tagged files, which can be handy if you're copying groups of files to different locations. Desktop also lets you compare the files in two directories, automatically highlighting the different files in both.

True, Desktop doesn't make the best possible use of precious screen space. For example, the only way to show more than a single column of files is if you show only file names. If you choose to display any details, you can have only a single column, even though there's more than enough room for two columns.

But that's the only knock on Desktop's file manager. The program allows you to display up to eight drive windows at a time, a far more generous offering than that of PC Tools, which accommodates only two. For most purposes, the limitation on the number of windows you're only going to want to have two drive windows open at a time anyway. But if you have a reason to open more, Desktop allows you to tile or cascade them so you can move about quickly.

Desktop provides fully three different choices when you want to format a floppy: the standard DOS method, a "Safe" method that checks the integrity of the disk and reformats only the tracks that need it, and Quick Format, which doesn't really format at all, but simply cleans out system information.

As if that weren't enough, the program's SuperFind feature is a model of easy-to-use power for locating files in any of a variety of characteristics, including file-name extension, file type (text files, spreadsheets, etc.), date range, size range, and just about anything else you can imagine. In addition, you can file SuperFind to retrieve files that contain a specified character string. The program is just as refined in allowing you to narrow your search to specific drives or directories. Predefined options, for example, include searches across the current drive, across all except floppies, across all drives and subdirectories. You can also create your own file and location sets and add them to the catalog.

Desktop also offers a front end for PKZip that lets you tag files for compression into archives. The file manager also archives files, such as files as far as file operations go, such as copying, moving, or deleting. You can compress or decompress files from the

drive window into the Zip window. We rate Desktop's file management excellent.

File viewers: The program supports more than 50 file formats, including most of the major word processing, database, spreadsheet, and image formats.

Just as important, Desktop lets you choose how to view files. For full-screen viewing, you can simply drag-and-drop the file you want to view onto the View option on the button bar, which loads it into the Viewer. Once in the Viewer, you can open any other file, just as in your word processor. But if all you want to do is take a quick peek, opening the smaller view pane on the File Manager's drive window is simpler. Once you've opened the view pane, it will display the contents of the currently highlighted file, which makes it a snap to scroll through a directory to check files.

If your straight ASCII file has text running off the screen, you can turn on Word Wrap to bring it all back in line. Desktop even allows you to view database files either as tables or in single-record format. And, like XTree Gold, you can view the file you're viewing for character strings. With image files, you can zoom, rotate, or flip the image. It won't change the image as it is saved on disk, but it will change what you see on the screen.

The only really notable limitation on Desktop's viewer, and one that keeps it from reaching a score of excellent, is that unlike XTree, the program doesn't allow you to view the contents of compressed files without first uncompressing them — you can view only the subdirectory of zipped files. Desktop earns a score of very good for file viewers.

Menus: Like Desktop for DOS can't quite compare to Desktop for Windows when it comes to making menus for launching your applications. You can't, for example, make multiple floating menus, and you certainly can't choose between icon/text menus and the more space-consuming menu-only ones.

Instead, Desktop for DOS offers a single application menu, which can contain up to 100 items, each of which can be either a program, a submenu, or a batch file. If you like, Desktop will scan your disk for applications and automatically generate a menu, with the programs broken down into appropriate categories: spreadsheet, word processing, etc.

If your application is not recognized, you can use the Menu Editor to make any changes or additions you want. The Menu Editor also makes it a snap to create menus for others to use. You can attach messages to menu entries so that when that item is selected, the message pops up. You can also insert prompts for the user to enter information before a program starts, such as a file name to be loaded with the application.

The program allows you to password protect files, and will sound an alarm after three unsuccessful attempts to enter the password.

Of course, just as with Windows' file manager, you can always launch applications directly from the Desktop file manager by double-clicking on the executable file. Most of the file extensions with the appropriate applications, you can launch the data file and the application simply by double-clicking on the data file. (Desktop comes configured with associations for many business applications.)

Desktop for DOS also lets you add customized drop-down menus to its own menu bar. You can add the new menu either as a main menu, alongside the



Unlike the Windows version, Desktop for DOS includes Norton's compression utility, which offers options for both the greatest packing and fastest operation.

standard seven, or as a submenu on one of the existing menus. Users typically put DOS applications on custom menus for quick access. You can, however, also add commands from other menus to launch applications, for example, or start batch files. Menu-making rates very good.

Other features: It's likely that for every user who purchases Desktop for DOS to obtain its desktop features, there's a user who will buy the program to get at the Norton Backup or Norton Antivirus applications.

In addition to those two best sellers, there's a grab bag of other goodies. You can use Remote Link, for example, to transfer files with a remote computer, either over a NetBIOS- or IPX-compatible network or using serial or parallel cables for direct hookup. Remote Link lacks many of the more advanced features, such as automatic synchronization of directories, though you can compare directory windows across links and then synchronize them. But it may save many users from buying a file-transfer package.

In addition, Symantec has thrown in the Norton Editor, an ASCII editor that allows you to have up to eight windows open at a time, and Sleeper, a handy set of screen blankers. Desktop also comes with a selection of the most popular items from the Norton Utilities, including Unerase, Disk Doctor, System Information, Speed Disk (for optimizing hard drives), and a disk defragmenter.

For good measure, Desktop for DOS includes a Scheduler (to perform operations at set times, such as backups), a basic calculator, and a bare-bones calendar for keeping track of appointments.

Finally, Desktop for DOS, like Norton Commander, offers a menu for handling your MCI Mail account. Like Commander, Desktop allows you to attach binary files to messages. But Norton also makes it easy to shuttle incoming and outgoing messages to designated directories and to queue files for transfer. Desktop's other features earn an excellent.

DOCUMENTATION:

Neither Symantec nor Peter Norton have a reputation for skimping on documentation, and Desktop for DOS doesn't tarnish that record. The package includes two large user manuals, one for the Desktop and one specifically for the Backup program. Both manuals are very

well written, with clear, easy-to-follow explanations, and both are thoroughly indexed. We did find one error in the Desktop user manual on page 9-9. The manual incorrectly states that you cannot add internal DOS commands to customizing drop-down menus, when in fact you can.

In addition, there's a short installation guide for the Backup program and a fold-up quick reference guide that gives more information by itself than some manuals. Finally, Norton has included a card that summarizes quick installation information for the Desktop on one side, and emergency uniform and unerase information on the other side.

The program's on-line, hypertext help is outstanding and is marred only by the fact that it relies exclusively on its own index, which doesn't allow you to search through the help file for a topic. Content-sensitive help is available as well, as are tutorials. We rate documentation very good.

EASE OF LEARNING:

Desktop for DOS provides so many features — several of which are also available as powerful stand-alone applications — that it will take quite some time for the user to become thoroughly familiar with all of the package's capabilities. But that is purely a function of the amount of ground Desktop covers, not of any hurdles to learning.

In fact, thanks to its clean design, thorough documentation, and tutorials, even novice users will find themselves comfortable with Desktop's basic file management and menuing functions in about two hours. Of course, the most complex features, such as defining scheduling backup sessions, may take considerably longer for some users to master. Ease of learning is very good.

EASE OF USE:

Clean design is always the primary factor in a program's ease of use, and Desktop doesn't disappoint. You can adjust nearly all of the system's settings through logically designed, well-constructed dialog boxes. The program is one of the few to make good use of the right mouse button. You can select a group of files, for example, by clicking the right button on each file.

Two other features also greatly add to Desktop's ease of use: drag-and-drop file

handling and the desktop's high degree of customizability. Dragging files and dropping them on the command to copy, print, or whatever may not seem like that big a deal, but over time you should find it to be quite efficient. Desktop for DOS also offers the user a great deal of control over how the desktop appears. For starters, you can, as mentioned above, configure the program to mimic either Desktop for Windows or Norton Commander, whichever better suits your taste. In the Desktop interface, you can customize where drive icons and the button bar appear, as well as whether to put shadows on windows. You can also elect to scan any floppy drive with the included Norton Antivirus whenever you enter its drive window. Like the Windows version, the DOS Desktop's file panes will retain whatever size and position you want.

That's not all. You can even set Desktop to perform any of seven different tasks whenever you give the command to exit to DOS. If you check the appropriate box, the program will perform a backup, send and receive mail, perform CHKDSKs, scan disks for viruses, optimize your hard drives, image disk information, or log out from the network.

The only ding on ease of use worth mentioning is that the program was inconsistent in its handling of one mouse command — the double-click on the control box to close a window. Sometimes it worked, and sometimes it didn't,

and changing the mouse settings didn't solve the problem.

Other than that, the only handicaps in ease of use are a result of the program's operating system — specifically, that Desktop doesn't allow you to open applications in windows, and that it does not support multitasking. Ease of use earns a very good score.

ERROR HANDLING

Our testing for this review showed

Dragging files and dropping them on the command to copy, print, or whatever may not seem like that big a deal, but over time you should find it to be quite efficient.

Desktop for DOS to be very steady. Even shelling out to DOS applications that couldn't be loaded for one reason or another didn't trip up Desktop.

Desktop lets you password protect access to menus. Desktop also guards against accidentally deleting data by requiring confirmation before any destructive actions. If you do delete a file later with your hand, you can resort to Unerase. But if you have saved data since deleting the file, there's a good

chance you won't be able to successfully unerase. That's when you will be glad you used Desktop's SmartCan.

SmartCan, which requires 10K of RAM, is a memory-resident program that is invoked in your AUTOEXEC file. With SmartCan running, whenever you delete a file, it actually goes into a directory where it will remain until a specified number of days passes. That gives you a grace period to change your mind. Desktop earns a very good for error

answered after we spent less than one minute on hold. We found the support staff to be very knowledgeable and eager to help. Technical support is very good.

VALUE:

Though both Desktop for DOS and PC Tools offer similar file managers, menuing, disk diagnosis and repair, antivirus and backup tools, there are differences. PC Tools offers better personal productivity tools, with a more robust scheduler, a set of four calculators that include advanced financial functions, an outliner, and an autodialer. PC Tools also sports a built-in dBase-compatible database.

But Desktop for DOS is easier to use than PC Tools, thanks to its drag-and-drop file management and other features. Desktop also offers a broader range of viewer file formats. Desktop's file find feature is stronger than the one in PC Tools, and the package includes Zip file compression, serial and parallel file transfer, and screen savers — features missing in PC Tools.

The overall similarity in feature sets is matched by a similarity in price. Desktop for DOS lists for \$179.95, while PC Tools carries a price tag of \$179.

Given the incredible range of features you receive, Desktop for DOS represents an excellent value. □

Patrick Marshall is a contributing editor.

CorelDraw 3 moves faster, integrates modules

Preview-mode editing, innovative menuing keep pace with competitive marketplace

BY MIKE HECK REVIEW BOARD

CorelDraw's broad feature set and simple operation attract both professional artists and business users.

Although it was once unmatched among PC illustration packages, CorelDraw now faces strong competition from Aldus FreeHand, Micrografx Designer, and Adobe Illustrator 4.0 at the high end and from low-cost packages such as Micrografx Draw.

CorelDraw fell behind by using a proprietary tool technology, lacking preview-mode editing, and requiring rigid text entry. CorelDraw 3.0 emerges with new drawing features, built-in presentation graphics features, bit-mapped image editing, and charting modules. In addition, design professionals should be pleased with Version 3.0's unique tool palettes and improved performance. Corporate users can also estimate the need to purchase separate illustration, presentation, and paint products from different sources. Instead, CorelDraw 3.0 uses Windows OLE technology to smoothly integrate all of its modestly priced bundled modules.

FEATURES:

The core illustration module is similar to other major drawing applications — you can now edit in preview mode as well as the original wireframe setting. Although you are viewing the whole image, screen-redraw times in preview don't suffer, in fact display and redraw times are better than in the previous version.

Text handling also underwent major

reconstruction. CorelDraw 3.0's 153 fonts now come in TrueType format (an additional 100 fonts are provided on the included CD ROM) and the program directly recognizes Adobe Type 1 or other TrueType fonts. Type is now entered directly on-screen, and there are numerous neat ways to align text to a path — such as by using vertical keys.

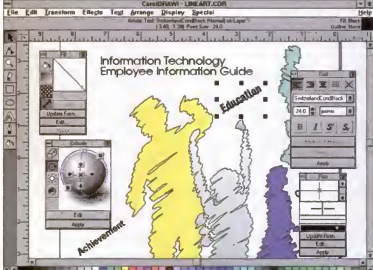
The redesigned blend tool lets you edit the first and last object; it then automatically regenerates the blend. You can also align the blend to a path and even blend grouped objects.

The new layering feature allows any shape that's drawn on the guideline layer to function as a guide. In addition, you can define unlimited layers and easily swap the stacking order.

CorelDraw 2.01 introduced many special effects, such as three-dimensional extrusions. Version 3.0 goes further, functioning like a high-end modeling package. You can view objects from any angle and set the lighting source for very realistic effects.

Corel Systems has integrated many presentation features into CorelDraw 3.0. CorelChart gives you most of the features of dedicated packages such as Lotus Freelance or Harvard Graphics while going beyond the built-in charting of Aldus Illustrator 4.0 or Micrografx Designer. Besides a large gallery of chart formats, you can create pictographs using the built-in art library.

CorelShow lets you assemble objects from any OLE-compatible drawing, charting, or painting application (other OLE server) into a slideshow. Basic



CorelDraw 3.0's new roll-up menu feature lets you access additional functionality in one simple step.

transformation effects, such as dissolve, and some interesting capabilities, such as playing AutoDesk Animator FLI movies and digital sound files, are a few of the many features that are available. In addition, Corel is now shipping a free runtime version of CorelShow, support for Kodak's Photo CD system and an Auto-garage slide kit.

The painting module, CorelPhotoPaint, (Zsoft's PhotoFinish), offers a wide collection of retouching and special effect filters. While not as robust as Adobe Photoshop for the Macintosh or Aldus PhotoStyler, Photo-Point is valuable for touching up scans or integrating images.

CorelTrace (the stand-alone auto-

tracer) hasn't changed much. However, CorelMosaic, a visual file manager, has refined search and display functions. That is important because CorelDraw 3.0 ships with a CD ROM containing 14,000 clip-art images (in addition to 250 TrueType fonts and all program elements).

PERFORMANCE:

Drawing/editing: At first glance, CorelDraw 3.0's interface appears identical to Version 2.01. There is an assortment of reshaping tools and primitive objects, plus a color palette at the bottom of the screen. The outline and fill tools retain their characteristic fly-out menus that appear to the right of the tool menus

and let you quickly change the look of a selected object.

One of the significant interface changes in Version 3.0 is the addition of floating "roll-up" windows that substitute for many pull-down menus. These windows provide additional visual feedback about the task at hand and have an arrow that allows you to either expand or contract a list of features. For example, the Fit Text to Path roll-up provides a compass showing the position text will occupy on a path, along with orientation and alignment indicators.

Another benefit of roll-ups is that they place gradients and patterns right at hand. In addition to PostScript fills that were previously available, you now have a choice of color bit-mapped fills.

We really liked Core's ability to fit blended objects to a curve. By adjusting any of the curve's nodes, you can quickly change the shape of the whole blend. Fundamental Bezier curve editing hasn't

changed. You can reveal control handles to change an object's outline, join lines, or cut segments without making them into menu selections. However, the preview editing mode really speeds work, since you immediately view how changes affect the overall illustration.

Text can be spell-checked, there are new hyphenation and column controls, and a thesaurus is included.

We were especially impressed with the innovative dialog box roll-ups—they represent a real interface breakthrough. CoreDraw's new preview editing, layering, and type handling also contribute to finer editing control. We rate drawing/illustration excellent.

Tracing: CoreDraw provides a simple built-in Auto-trace feature along with the more elaborate CoreTrace module. Auto-trace works well for basic black and white images. You can crop, rotate, and skew the original bit map and choose which sections of the image to trace. The program also offers some tracking options that specify smoothness of the resulting Bezier curves and line weight.

Special effects include coloring a monochrome bit map and applying a PostScript halftone screen pattern to a photo (only available with a PostScript printer). CoreDraw translates colors and shades of gray present in the bit-mapped image. You can select either outline or centerline tracing methods in addition to other parameters, such as line weight. CoreTrace processes partial images and reduces the number of colors or gray levels, eliminating unwanted details.

CoreTrace works as designed but lacks the image processing tools, such as color substitution, provided by Adobe's Streamline. We rate tracing very good.

Import/export: Both CoreDraw and CoreChart import various vector-based formats from other drawing packages and bit-mapped files. They import PCX, TIFF, BMP, DXF, Adobe Illustrator AI (EPS), GEM, Lotus Pict, HPGL, CGM, PIF (Output, Pict, WMF, GIF, and TGA). GEM formats include EPS, WMF, PCX, TIFF, DXF, CGM, PIF, GEM, HPGL, AI, PICT, SCODL, WPG, PFB (Adobe Type 1 font), TTF (TrueType font), BMP, GIF, and TGA.

Object Linking and Embedding (OLE) enables you to insert OLE objects into CoreDraw illustrations or place artwork into the charting and presentation modes. When appropriate (for instance, with bit-map export), you can specify colors (up to 24-bit) and number of fountain stripes. We didn't run into any unusual problems swapping images between other applications. Import/export is good.

Speed: We timed screen redraw in the preview editing mode. Scrolling a typical illustration with solid and gradient fills required two seconds at 200 percent magnification. That's a bit slower than Version 2.1's wire-frame mode but substantially quicker than the last version preview window where screens were active. CoreDraw 3.0 performs almost identically to Adobe Illustrator 4.0. Speed is excellent.

Output quality: Using a PostScript printer, you can set screen angles and frequencies for each process color. However, the pre-established settings for individual printers, which are optimized for 300-dot-per-inch to 3,084 dpi resolution, worked fine. We found little or no more patterns.

When selecting a fill pattern, you can enter trap information. CoreDraw 3.0, like earlier versions, lets you specify the

number of stripes used in gradients to control banding; with a sufficient number, we saw smooth fountain fills on a high-resolution image server. CoreDraw 3.0 doesn't provide the exacting output calibration functions or color separation options of Adobe's Separator program. However, output was professional. Output quality is very good.

DOCUMENTATION:

Documentation: The six separate modules could have been disjointed, but CoreDraw Systems redesigned all the instructions to follow their format and bound everything in one manageable paperback book.

Information about each program is organized in its own section, complete with a separate index. The documentation intersperses tutorial-style drills with more technical descriptions. Material is grouped in logical areas, so you don't have to do a lot of page jumping when following one topic. The documentation also includes a pictorial index of all clip art, a quick reference booklet, and a one-hour videocassette. Additionally, Version 3.0 includes on-line help for all programs. We rate documentation excellent.

EASE OF LEARNING:

CoreDraw's interface still represents a model design. There are just a few tools to grasp, and their operation is unusually

dialog box lets you specify the gradient angle and even the starting position—all with a minimum of mouse clicks.

Extrusion, Layer, and Text roll-ups provide similar benefits. For example, the layer menu lets you change the stacking order by merely dragging the layer name to a new position in the list. When designing intricate drawings this is far easier than moving objects in front of, or behind, one another on a one-dimensional drawing page.

CoreDraw 3.0 proves its versatility in other high-end operations. For example, complex blends can replace more time-consuming masking required by other programs. In addition, CoreDraw's large library of symbols, line ends, and patterns provides unlimited prefabricated ideas. (If you have a CD ROM drive, then all the clip art is at your disposal, too.) This ready-to-use material may appeal more to users with a modest art background, but professionals can also cut design time by employing these high-quality images.

Although we don't focus on charting or presentation capabilities, these areas carry forward the same simplified interface of CoreDraw. Specifically, CoreDraw's Charting and Presentation tools this advanced Windows function should be implemented. You pass back and forth between applications with hardly any manual intervention.

Although we were impressed by CoreDraw's versatility, the package would benefit from more than one drawing page and the ability to open several drawing windows simultaneously. Ease of use is very good.

SUPPORT:

Support policies: Core Systems' technical support hotline offers automated answers to many common questions 24 hours a day. You can also speak toll-free (800) 836-DRAW with a technician 24 hours a day, Monday through Friday. Eastern time. On-line help is available on CompuServe, and Core Systems accepts faxed questions. We rate support policies very good.

Technical support: Answers to CoreDraw 3.0-specific questions hadn't been entered into the automated response system when we tested the product, but we had no problem speaking personally to a person about some minor incompatibilities. Most of these were attributed to third-party drivers, but the staff helped us resolve the difficulties without hesitation. We rate technical support very good.

VALUE:

With a price of \$595 (\$129 update cost), CoreDraw 3.0 clearly sets a new value threshold. Even if you only use a portion of the 250 TrueType fonts or thousands of CD ROM clip art images, then you've likely recovered your investment. Add in the paint and charting programs and it's hard to find a more value-laden offering. Beyond sheer bulk, CoreDraw 3.0 introduces some truly amazing innovations. On the illustration side, roll-ups will set new interface standards (Microsoft is considering them for the next version of Windows). Furthermore, the remaining parts of the program have few limitations. We rate value excellent. □

Mike Heck is manager of Electronic Promotions for Unisys Corp. of Blue Bell, Pennsylvania. He oversees desktop production of marketing literature and specializes in project management, graphics, and word processing applications.

REPORT CARD INFO WORLD

ILLUSTRATION SOFTWARE

CoreDraw

VERSION 3.0



Criterion (Weighting) Score

Performance

Drawing/editing (150) Excellent

Tracing (50) Very Good

Import/export (75) Very Good

Speed (50) Excellent

Output quality (125) Very Good

Documentation (100) Excellent

Ease of learning (100) Very Good

Ease of use (125) Very Good

Support

Support policies (50) Very Good

Technical support (75) Very Good

Value (100) Excellent

Final score 8.5

PRODUCT SUMMARY

Company: Core Systems Corp., 1600 Carling Ave., Ottawa, Ontario, Canada K1Z 8R7; (613) 728-8200; (716) 423-8200 in United States.

List Price: \$595 (disk and CD ROM); \$549 (CD ROM only); upgrades: \$129.

Requires: Intel 286 or compatible system (386 recommended); 4 megabytes of RAM; Windows 3.0 (Windows 3.1 required for TrueType fonts); hard disk; mouse; VGA resolution or higher Windows-compatible display (Super VGA, 8514A, XGA).

Preview: New mode editing; dynamic text entry and editing; roll-ups simplify complex changes; unlimited layers; includes charting, painting, and presentation modes.

Cons: Single drawing page; no elaborate control over color separations; one undo level.

Summary: CoreDraw 3.0 overcomes previous limitations, keeping it competitive with other mainstream illustration programs. The program's revamped interface is sure to set new standards. Bundled modules and CD ROM make CoreDraw 3.0 an exceptional value.

LAN Directory keeps an eye on diversified networks

Frye inventory package works under many network operating systems and hardware platforms

BY MARY CARLETON REVIEW BOARD

A gem among network inventory packages, LAN Directory from Frye Computer Systems Inc. is one of the most comprehensive and versatile products we've seen. Network inventory packages such as DOS-based LAN Director allow administrators to keep track of hardware and software on network workstations, helping the administrator to make sure software licenses are not exceeded and to keep track of software versions for upgrades, bug fixes, etc.

As networks grow and mature, their hardware becomes increasingly diversified. LAN that may have started out as a collection of 286 ISA DOS workstations connected by Ethernet to a single 386 server might now consist of a miscellaneous collection of ISA, EISA, and Micro Channel Architecture PCs alongside Macintoshes, Token Ring, Arcnet, StarLAN, and AppleTalk may have been added to the original Ethernet network.

DOS is also no longer a common factor: Workstations may be running DOS, OS/2, or Windows, not to mention

Macintosh System 6 or System 7. There is also no guarantee of which network software the server is running. It might be Novell 2.x or 3.x, NetBIOS, Banyan Vines, or LAN Manager. LAN Directory can handle most of these configurations even within the same network. Like all of Frye's products, LAN Directory runs best under NetWare, but it can function at least partially under the other systems.

We based our review on the criteria established for our November 4, 1991, comparison of network utilities (page 59). Our test platform was an Ethernet network running Novell NetWare 3.11.

PERFORMANCE:

None of the packages reviewed in our November 4 comparison was so versatile as LAN Directory in scope of hardware with which it could work and inventory.

(The inventory products reviewed in that comparison were LAN Auditor by Horizons Technology Inc., LAN Automatic Inventory by Brightwork Development Inc., and Network H.Q. by Magee Enterprises Inc.)

LAN Directory usually resides on a network drive, but the administrator runs it from a workstation. LAN Directory automatically performs most of its data collection over the network, but you must take extra steps to collect some data, such as EISA and server hardware information, and then merge the data into the common database. LAN Directory offers provisions for inventorying stand-alone workstations and for manually entering information on external peripherals such as tape drives and printers. You can merge information on stand-alone workstations into the main database, but information on peripherals goes into a separate database.

Whenever NetWare users log in, LAN Directory collects data automatically via commands in the system log-in script. The administrator can control how often LAN Directory actually inventories workstations; the program defaults to inventorying hardware once a day and software once a week, but it can inventory both as frequently as every log-in.

LAN Directory automatically inventories a workstation that is new to its database. The program keeps track of all workstations on a network, but it limits the number that it reports on and allows you to view according to your LAN Directory site license. This means that if you have a limited number of workstations supported by your license, LAN Directory will already have information on those workstations in its database.

To help you organize your database, LAN Directory uses the concept of an internetwork ID. The administrator assigns arbitrary IDs, giving logically associated machines identical IDs.

Workstations are identified on the LAN Directory screens by the user ID of the first person to log in with that station. Fortunately, the administrator can easily change this station name; otherwise, you would have many stations identified by the ID of the installer who set them up.

LAN Directory relies on the underlying network to provide security, making no provisions itself to keep sensitive information private. This is acceptable on Net-



Users can elect to run LAN Directory on stand-alone and networked PCs, as well as on such components as tape drives and modems.

Ware, but it could be a problem on some less sophisticated network operating systems.

LAN Directory maintains more fields in its database than any other inventory package; these fields let it keep track of more items. In addition to keeping track of standard items, such as processor speed and serial numbers, the administrator can use many of these fields to manually keep track of additional network components, such as modems and fax boards.

To conduct a hardware inventory of a server, you must down the server and then inventory it as a stand-alone workstation, merging the results with the main database. LAN Directory can also track hardware changes made to non-networked workstations (including Macs).

LAN Directory performs software inventories differently than the other inventory packages. Those packages—particularly LAN Automatic Inventory—record all the applications that reside on a workstation. LAN Directory works from a master list of known applications supplied by the Software Publishers Association. Each application on this list is a commercial package subject to licenses and updates. The administrator can edit this list to add packages or ensure the accuracy of its entries. If an application is not on this list, LAN Directory ignores it.

It is fun and often useful to glide through LAN Directory's screens looking at facts about individual machines, but the real power of LAN Directory lies in its report generator. LAN Directory comes equipped with a generous set of premade reports that cover most, if not all, of the commonly requested information. You can individually modify these reports to change their content and appearance, but it is just as easy to create and store an entirely new report for future use.

You create quick reports by simply choosing databases and database fields from menu selections and saving or otherwise organizing them as you wish. Both quick and detailed reports can be columnar or record oriented; LAN Directory lets you customize detailed reports, giving

you complete control over the placement of fields, titles, headers, and the like. Detailed reports also permit you to perform logical and mathematical operations on fields—a feature not generally found in inventory packages.

Reports can be viewed on the screen, printed to any network printer, or exported as either comma-delimited ASCII text or as a dBase III-compatible database file. A columnar quick report of a single application over all machines shows at a glance which machines don't match the desired version.

LAN Directory offers a variety of methods to track and report on a broad range of systems. We rate its performance excellent.

DOCUMENTATION:

Documentation is LAN Directory's weakest point. Although the manual supplies both a table of contents and an index, we still ended up flipping pages to find specific topics. The manual is complete in that it does describe the entire program and all of its options. However, the authors and editors were too familiar with the package to catch some occasionally ambiguous phrases; also, nowhere does the documentation tell you that you must type Land to start the main program.

The general computer reference and glossary and the complete listings of all database fields in the back of the manual are nice touches, and the manual itself is quite educational in its descriptions of what fields are being inventoried. There is also a quick-start guide. On balance, documentation earns a good score.

SETUP:

LAN Directory's setup is at best semi-automated. It will create NetWare directories for you and copy files to them, and it will even modify your system log-in script in that if you wish, it will do file copying and typing to finish the installation.

On non-NetWare networks you must do considerably more typing, but the

REPORT CARD

INFO WORLD

INVENTORY SOFTWARE

LAN Directory

VERSION 1.10e

Criterion	(Weighting)	Score
Performance	(300)	Excellent
Documentation	(75)	Good
Setup	(125)	Good
Ease of use	(175)	Very Good
Support		
Support policies	(75)	Very Good
Technical support	(100)	Very Good
Value	(150)	Excellent
Final score		8.3

PRODUCT SUMMARY

Company: Frye Computer Systems Inc., 19 Temple Place, Boston, MA 02111; (617) 451-5400; fax: (617) 451-6711.

List price: \$495 for first 50 computers (servers, workstations, etc.); \$395 for each additional 100 computers.

Requires: Server: NetWare 2.0 or later, NetBIOS, Banyan Vines 4.1 or later, LAN Manager 2.0 or later, LAN Server 2.0 or later, 4 megabytes of hard disk space. Workstation: Intel 8088 or compatible, Macintosh System 6.0.4 or above, 500K of RAM.

Pros: Supports wide range of hardware and operating systems; numerous database fields; flexible reporting facility.

Cons: Must take down the server to inventory it; some unclear phrasing in documentation.

Summary: LAN Directory works with a variety of systems to let you customize the manner in which you keep track of software and hardware on your network.

manual is helpful in showing what must be done. It also discusses how to run LAN Directory under OS/2 and Windows, and Frye includes a program information file for use with Windows 3.0 or 3.1. We were able to install LAN Directory without any problems, and everything worked properly. After intentionally reinstalling LAN Directory, it recognized that a copy of the program was already present and updated the program files without disturbing the databases. Those of you upgrading from Version 1.0 should have no problems. We rate setup good.

EASE OF USE:

Frye has developed a unique user interface for its products, with such conventions as using the Tab key to zoom screens and the Ctrl key to change menus. The first encounter with such a system does cause the fingers to fumble, but the awkwardness rapidly fades because the commands are consistent. Keys don't change their meaning from screen to screen, and Frye uses the same conventions in all of its products. It is easy to navigate the program, even without the manual. LAN Directory doesn't support a mouse, but you won't really miss it. Merging records from Macintoshes and stand-alone PCs is not difficult, but you must do it via a separate DOS com-

N/Joy may carry object orientation too far

'Office' setup is innovative but leaves out some ease-of-use features

BY PATRICK MARSHALL
CONTRIBUTING EDITOR

Welcome to the brave new world of object-oriented applications. But be forewarned: N/Joy, an OS/2 integrated package, is not for the fainthearted and those resistant to learning new ways of working. Although the program has many interesting features, it is difficult to learn. Therefore, many users may not stick with it long enough to learn some of its elegant, though all-too-hidden, features.

For example, you don't have to call up the spreadsheet or graphing module to change an embedded graph. You just click on the graph and all the tools and dialog boxes appear. With N/Joy, the object is linked to the application, so accessing a graph or text automatically accesses the graphing or word processing applications.

N/Joy makes even better use of drag-and-drop capabilities than many of the new crop of Windows programs. For example, to file a document, just drag and drop that object onto the file cabinet object. Similarly, you can easily make a new file cabinet in which to store objects either by dropping a cabinet onto the copy object, which will make a duplicate, or by choosing a new file cabinet from the catalog.

With N/Joy, a document object is composed of any combination of word processor, spreadsheet, and graphics "areas." You can then apply other objects, such as the Pencil (which controls fonts) and the Footnote, to any area.

But slick as N/Joy's object-oriented approach is, many users are apt to feel that it has been carried too far. With dozens of separate objects floating around your screen, instead of residing as commands under menus, your screen tends to get cluttered. In addition, N/Joy's documentation, both on-line and hard copy, is so skimpy that learning the program is intolerably difficult and compounds its ease of use.

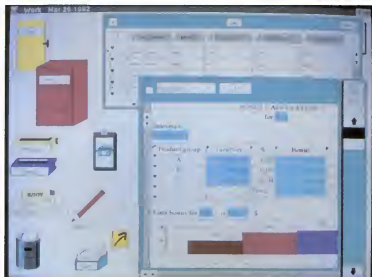
Finally, though N/Joy's object-oriented approach brings a high degree of interconnection to the program's applications, they are mid-powered at best, and the package carries the rather steep price of \$695, which may be too much to pay for the novelty of object-oriented programming. You might be better off running a DOS or Windows integrated package under OS/2.

We tested N/Joy with criteria from our integrated software comparison of August 14, 1989, page 46.

FEATURES:

The first thing you'll notice when you boot up N/Joy initially is what isn't there. Specifically, there are no menus, only several objects scattered on-screen. There's a door, which will take you into another "room" that contains a different set of objects; a copy machine; a trash can; a file cabinet; a printer; a Pencils bar; and several booklike objects.

One of the booklike objects is a catalog listing all of the available objects, including such items as Retriever, Footnote, and Import-Export. Another booklike object contains a document form. When you double-click on the icon, the docu-



If you total expenses in one worksheet, N/Joy automatically enters and updates the figure in another worksheet.

ment opens. You place different types of data areas on a page by selecting text, a spreadsheet, or a graph from the catalog list. Whichever type of area you select, there are two ways to control the data. First, you can click on various points inside the area to access different dialog boxes that control an area's features, such as text fonts and borders in a word processing area. Second, you can apply other objects selected from the catalog to the area. If you want to search a text area for a character string, for example, you apply like Retriever object to it.

N/Joy offers an adequate word processor and database, coupled with fine spreadsheet and graphing capabilities. Unlike traditional DOS and Windows integrated packages, however, N/Joy does not include any draw or paint capabilities, nor does it offer a communications module.

PERFORMANCE:

Spreadsheet: N/Joy's spreadsheet is somewhat hard to use, primarily because the commands are too well hidden. However, most users will find the program's spreadsheet capable of handling their needs, and there are some nice surprises.

Unlike most integrated packages, N/Joy allows you to link cells in different spreadsheets through hotlinks. You can total expenses in one worksheet, for example, and the program will automatically enter and update the figure in another worksheet. Another unusual feature is N/Joy's calculator object. If you call up the calculator and link it to a spreadsheet, anything you enter into the calculator will be automatically entered into the spreadsheet's currently active cell. When you select a formula from the calculator's scrolling menu, you receive both an explanation of the formula syntax and a fill-in-the-blank version on the entry line.

Unlike many integrated packages, N/Joy supports range naming and sorting in the spreadsheet. The program's spreadsheet also includes a relatively generous maximum capacity of 2,000 rows by

1,600 columns.

N/Joy's spreadsheet, though, has some limitations. It only provides a list of 28 available formulas, and many of the features some users might consider basic — such as the capability to freeze titles, transpose rows and columns, and split screens — are missing. In addition, the program can't wrap text in cells and can't resize cells automatically to accommodate text. However, you can grab a side of the cell with your mouse and resize by dragging. You also can't attach notes to cell entries.

We rate spreadsheet capabilities satisfactory.

Word processor: As with the spreadsheet, N/Joy's word processor is a curious mix of many strengths and a few surprising weaknesses. It offers true WYSIWYG display. Unfortunately, there is no draft mode, and scrolling and other actions requiring screen refreshes can be irritatingly slow. And though you can resize the document window, you can't enlarge it enough to show a full page. In addition, there is no zoom feature.

N/Joy employs PageMaker-like frames for text areas. You simply click on the Text object in the catalog, then click and drag to draw a box where you want the first area to go. You use the windowshade handle, called a "generator," at the bottom of the text area to create another connected area or page.

To create multiple snaking columns on a page, you just create multiple connected text areas. If you want to ensure that the columns are the same size and the gutters between them are regular, the best you can do is call up the ruler and eyeball them. N/Joy supports two preformatted multiple columns, but it does not support a snap-to-grid feature.

The Retriever object allows you to perform search-and-replace operations. In addition, N/Joy lets you generate tables of contents but not indexes, and it supports footnotes but not endnotes. You can perform mail merge in conjunction with the program's database, in addition to saving layouts as style sheets.

It is easy to navigate the program, even without the manual. You won't really miss the mouse.

mand rather than from within LAN Directory. This lack of integration prevents LAN Directory from earning the top score, but the fact that we never got lost or needed outside help raises its score to very good.

SUPPORT:

Support policies: Registered users receive unlimited toll-free support from 8:30 a.m. to 5:30 p.m. Eastern time, Monday through Friday. Support is also available via BBS and Fax. Support policies are very good.

Technical support: As with other programs in Frye's family of products, we never ran into a problem requiring the services of technical support, so all of our questions were contrived, albeit complex. If others have the same experience, it would explain why Frye is always easy to reach. The staff was friendly and helpful. Technical support is very good.

VALUE:

At \$495 for the first 50 machines, LAN Directory's price is in line with other inventory programs. Version 1.0 users can upgrade for free.

The program's completeness, flexibility, and ease of use, however, put it a notch above the competition. It supports a wide range of hardware and operating systems, broader than most of its competition. LAN Directory is an excellent value. □

Mary Carleton is a member of InterLink, an international consortium of network consultants.

With N/Joy, you can, of course, mix text and graphics on a page. However, because all areas — text, spreadsheet, graphs, or bit maps — are rectangular, you can't wrap text around a graphic with an irregular border. You can overlap areas, but only the top area will be printed. N/Joy also does not include a spelling checker or thesaurus. The company said that a spelling checker should be available this fall.

Word processing is satisfactory. Database: N/Joy's database is a conventional flat-file application with a rather modest 4,000-record-per-data-file capacity. You can create your own data forms; however, once you've set the fields, you can't change them without losing all your data. Fortunately, N/Joy allows you to copy all your data to the program's clipboard (which has a 64K limit) and reimport it to the database once you've made your changes.

N/Joy sorts records according to the first column in the database in both ascending and descending order. But you can move columns easily by clicking and dragging, which makes sorting by any

data field a snap.

N/Joy's database does not provide a list view of entries, nor does it include a dialer. In addition to N/Joy's own format, the program supports four other file formats: OS/2's Database Manager, dBase, dIF, and delimited ASCII.

Database capabilities are satisfactory. Communications: N/Joy does not provide a dialer or communications software. The only communications-related feature the program includes is an E-mail module for network users. N/Joy monitors a specified directory for any changes and alerts you if a message awaits.

Communications is N/A. Graphics: With N/Joy, you can import images into documents, although currently the program only supports BMP files.

N/Joy's graphing capabilities are strong, offering a generous variety of graph types: bar, column, line, area, pie, scatter, and points. The program also offers three-dimensional and shadow effects, and you can have the point values displayed on the graph.

You can add or delete legends, axis names, and titles; however, you cannot change the arrangement of those elements. If you want a title, it must be at the top of the graph. Likewise, if you use a legend, it must reside on the right.

The one special feature of N/Joy's graphs is that they are bidirectionally linked to the spreadsheet from which they

also doesn't include a tutorial, which it needs. (The company said an on-line demo is in the works.)

Documentation is poor.

EASE OF LEARNING:

Ease of learning is one of the primary feats of integrated programs. These programs are designed for users who are willing to sacrifice a certain degree of power in exchange for getting up and running quickly.

Unfortunately, N/Joy's lack of thorough documentation, the absence of menus, and hidden dialog boxes make this program a particularly difficult application to learn. We even found the company's staff uncertain on accomplishing particular basic procedures, such as deleting a row from a spreadsheet.

We rate ease of learning poor.

EASE OF USE:

Object-oriented programming offers a great deal of potential for enhancing an application's ease of use. And N/Joy certainly employs that technique to make creating integrated documents easy to do. The tools for text, spreadsheet, or graph areas are always within the document, and you access them simply by clicking in the area. N/Joy's object orientation also brings new power to drag-and-drop actions, allowing you to perform such operations as exporting files or copying spreadsheet data.

mises N/Joy's ease of use by omitting several features commonly found in the competition. The program only automatically formats two multiple columns, for example. Also, the spreadsheet's incapability to split panes — showing different portions of the same spreadsheet — makes viewing large worksheets difficult.

Ease of use is satisfactory.

ERROR HANDLING:

N/Joy's major error-handling problem is its lack of adequate documentation combined with its lack of on-screen prompts. Users will find themselves constantly taking the wrong turn in an attempt to accomplish the work at hand — at least until they become familiar with all of the program's features.

On the plus side, though, N/Joy automatically saves all of your data whenever you exit. Another advantage is N/Joy's wastebasket, into which you can dump all deleted files and text passages. If you decide you've deleted in error, you can always retrieve them from the wastebasket during the current session.

N/Joy protects your work from intentional or accidental sabotage by allowing you to password protect files. You can also make documents read-only.

Although N/Joy was generally steady during our testing, we found that it was very easy to get lost in the order of text areas across several pages. We ended up with several disjointed text areas, with the beginning of our text on page three. During our initial attempts to move our text up, the program crashed, and we lost all changes made during the session.

Error handling is satisfactory.

SUPPORT:

Support policies: You can receive toll-free support from Vienna Software from 8 a.m. to 8 p.m. weekdays, Eastern time. In addition, the company also offers fax (407) 241-5754 support. Support policies are very good.

Technical support: Vienna Software does not have a dedicated technical support staff, although they do promise to respond to all inquiries. We made several calls to the company during the week of PC Expo, when the staff was in New York. The messages we left at the company were returned within a few hours, however.

We found the staff eager to help, though, unfortunately, only marginally informed about the program's features. We received incorrect information on several occasions.

We rate technical support poor.

VALUE:

N/Joy has some truly innovative interface features, ones we'd like to see adopted by other programs. But N/Joy is also riddled with documentation, ease-of-learning, and ease-of-use problems. In addition, the program's individual applications are midpriced at best.

In spite of N/Joy's problems, though, Vienna Software is selling the program at a premium price — \$695. (Until the fall, you can buy N/Joy for a \$295 introductory price.)

In the time being, with no other prominent integrated packages in the OS/2 market, N/Joy enjoys dominance in a very narrow niche. Compared to DOS and Windows integrated programs, though, N/Joy does not as yet represent a strong value at its current price.

We rate value poor. □

Patrick Marshall is a contributing editor.

REPORT CARD INFO WORLD

INTEGRATED SOFTWARE

N/Joy

VERSION 2.0

Criterion	(Weighting)	Score
Performance		
Spreadsheet	(75)	Satisfactory
Word processor	(100)	Satisfactory
Database	(75)	Satisfactory
Communications	(75)	N/A
Graphics	(75)	Satisfactory
Speed	(50)	Satisfactory
Documentation	(125)	Poor
Ease of learning	(100)	Poor
Ease of use	(125)	Satisfactory
Error handling	(75)	Satisfactory
Support		
Support policies	(25)	Very Good
Technical support	(25)	Poor
Value	(75)	Poor
Final score		3.8

PRODUCT SUMMARY

Company: Vienna Software Publishing Inc., 1101 S. Rogers Circle, Building 14, Boca Raton, FL 33487; (407) 392-7724; (407) 241-5902.

List Price: \$695.
Requires: Intel 80386SX or higher; 6 megabytes of RAM; hard drive with at least 10 megabytes free; OS/2 2.0; and mouse.

Pros: Strong integration of applications; drag-and-drop capabilities.

Cons: Difficult to learn; inadequate documentation; not intuitive; moderately powered applications.

Summary: N/Joy's interesting object-oriented features are offset by its drawbacks and high price. OS/2 users who are interested in purchasing an integrated package may want to consider a DOS or Windows package with higher powered applications.

N/Joy has some truly innovative interface features which should be adopted by other programs, but it is also riddled with documentation, ease-of-learning, and ease-of-use problems.

originally. N/Joy automatically reflects any changes you make to the spreadsheet in the graph. Even more impressive, adjusting an element in the graph results in a change in the spreadsheet figures.

N/Joy does not provide either a draw program or a paint program. Graphics capabilities earn a satisfactory score.

Speed: We found N/Joy to perform reasonably fast on most operations. However, the program was decidedly sluggish at loading and opening documents and performing certain other file-related operations, such as copying and moving text. The program is also rather slow at scrolling, and it is incapable of keeping up with the cursor during some actions.

We score speed satisfactory.

DOCUMENTATION:

Vienna Software provides inadequate documentation for N/Joy. The hard-copy documentation fails to include so much important, pertinent information that it only suffices as a quick-start guide. For example, the manual doesn't explain how to add or delete columns in a spreadsheet.

N/Joy's on-line help, which serves as a reference manual, is adequate but not nearly complete enough to make up for the lack of hard-copy documentation. In addition, the program has relied so exclusively on the object metaphor that it has entirely forgone the usual on-screen menus and prompts other programs employ to cue users to procedures. N/Joy

However, using objects does not preclude the need for more traditional organizational tools, such as menus and on-screen prompts. N/Joy's omission of these tools makes it more difficult to accomplish tasks, because it's hard to remember where to find the appropriate dialog boxes for invoking commands and setting features.

In addition, N/Joy's object-oriented interface leads to a lot of on-screen clutter. Unlike traditional interfaces that bury dozens of commands under a menu bar, with N/Joy you'll soon have a dozen or more objects floating on-screen. Vienna Software, however, suggests that you gather all these stray objects and put them in "drawers," which appear as small menu bars. For example, you can create a drawer for Pencils, keeping all your fonts hidden but quickly accessible.

This procedure, however, increases the amount of on-screen housekeeping a user must perform instead of decreasing such chores. Also, if you want to change a font, you first have to open the pencil drawer, select the object you want, then select the font. One company support person said style-reformatting is so frustrating until you finish creating a document, then do it all at once.

N/Joy, unfortunately, doesn't include macros. These would be helpful in simplifying several processes, especially reformatting documents.

N/Joy's stylebars, which are rarely found in integrated packages, are a plus. Nevertheless, Vienna Software compro-

SuperStor 2.0 keeps low cost, adds value with more features

Speed, compression have changed little

BY LINDA SLOVICK REVIEW BOARD

Competition in the data compression arena is getting stiff as the need to squeeze more information onto hard drives increases. AddStor's SuperStor, the low-cost leader from our product comparison on data compression products (February 17, page 57), has released a new version, 2.0.

SuperStor offers even more functionality to this version, closing the gap between it and Stac Electronics' Stackcr software. SuperStor includes improved documentation as well as increased ease of use and setup. AddStor touts a fairly significant speed increase with 2.0; however, we found only a slight improvement in speed. We also did not achieve the additional compression capability the company claims.

PERFORMANCE: Speed: SuperStor 2.0 outperformed Version 1.3h in every speed test by a small margin, except in dBase IV and Word-Perfect. Version 2.0 was only faster than the baseline in the Lotus 1-2-3 3.1 test.

We rate speed good.

Compression: Although AddStor touts a 25 percent increase in compression, SuperStor 2.0 compressed our files the same ratio as Version 1.3h. Compression earns a satisfactory score.

DOCUMENTATION:

The latest revision of SuperStor's manual is better organized and makes much better use of illustrations and layout to clarify difficult concepts. The writing is tighter as well, leaving a compact and much clearer manual.

Installation instructions appear much earlier in the manual (just after the introduction). In addition, AddStor postpones the in-depth discussion of how things work "under the hood" until after establishing the basics. There is also a discussion of how to create a RAM disk.

Documentation is very good.

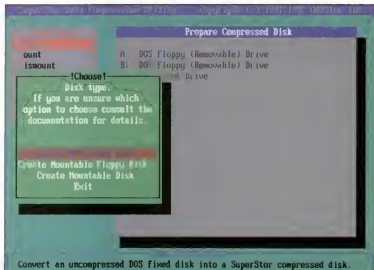
SETUP:

AddStor polished the installation program in this version of SuperStor, though it still isn't as elegant as Stackcr's automatic installation program. Having SuperStor's manual on hand will help you decide whether you want to convert your existing data or create a new "mountable" disk. You'll probably want to refer to the documentation early to determine when each CONFIG.SYS file (there are two) comes into play. The manuals will help you debug any conflicts that might arise.

Our setup went quite smoothly. We were able to install both OEM/386, Version 6.02 and Windows, Version 3.1, on our SuperStor drive without any conflicts. Setup earns a good score.

EASE OF USE:

As with the previous version, SuperStor 2.0 hides the "extra" drive letter and keeps your CONFIG.SYS files consistent even when you install programs to the compressed drive. A problem arises, though, when a program you're trying to install insists on loading its driver before SuperStor's. Although SuperStor can coexist with drivers from other applications, drivers added after installing SuperStor are on the compressed partition. Hence, the copy of your CONFIG.



SuperStor's new version of its Ssutl program includes even more utilities, such as Consolidate and Recompression.

SYs file that resides on the uncompressed partition points to a driver that's not there yet.

In light of this, AddStor has a utility hidden in Ssutl, called Update, that can help keep the two CONFIG.SYS files in synch and copies the drivers to the boot drive. Update goes through the CONFIG.SYS and determines which files need to be copied over to correctly complete the boot process.

As with Stackcr, SuperStor allows you to compress data on floppy disks. However, SuperStor lets you run a small subset of SuperStor, called 2XON, that allows your transportable compressed floppies to be read from, but not written to, any PC, regardless of whether it's running SuperStor.

SuperStor's advanced utilities are all grouped in the Ssutl program. The new version of Ssutl includes even more utilities to its already superpower toolkit. In addition to the Defragment option, Ssutl now provides a quicker option, Consolidate, which defragments your files without putting them in order.

If you discover that your files compress more or less tightly than you anticipated, Ssutl's Recompression option now allows you to tweak your disk to accommodate the actual compression ratio.

As with Stackcr, SuperStor lets you shrink or expand your compressed partition. However, Ssutl also provides an option in its Update feature that you can use from your emergency boot floppy to

help sort things out should your CONFIG.SYS file be improperly modified while installing an application.

With Ssutl's Analysis option, you can check, repair, or scan the disk to recover the remainder of a partition after a sector has gone bad. When we cross-linked some files and attempted to repair them, and later tried to scan for the remainder of a bad partition, both utilities worked fine.

Ease of use is excellent.

ERROR HANDLING:

We experienced no problems with SuperStor in either formal testing or general use. The program still handled the disk-full situation as DOS would handle it, displaying the "Insufficient Disk Space" error message and deleting the partially saved file. Ssutl also capably rescued us from our simulated damage to file and disk information.

We rate error handling very good.

SUPPORT:

Support policies: AddStor provides a 60-day money-back guarantee. You can reach technical support via a toll-free number from 8 a.m. to 5 p.m. Pacific time, Monday through Friday. There is also fax and BBS support. In addition, AddStor offers an audio text that you can call to get answers to the most commonly asked questions. We rate support policies excellent.

Technical support: We received helpful solutions to our problems from knowledgeable support personnel. We had to leave a message each time we called AddStor's technical support, but only in one incident did we have to wait more than an hour for a call back. Technical support is good.

VALUE:

SuperStor 2.0 still offers the lowest list price of the compression products we've reviewed. Its performance, however, isn't as much improved as the vendor claims, though it does offer marginally better speed than Version 1.3h. SuperStor does offer some fine features and has gained momentum on Stackcr's software in a couple of areas. We find SuperStor 2.0 a good value. □

Linda Slovick was formerly an analyst in the InfoWorld Test Center. She has extensive database and programming experience.

REPORT CARD

INFO WORLD

COMPRESSION SOFTWARE

SuperStor

VERSION 2.0

CRITERION (Weighting) Score

Performance		
Speed	(125)	Good
Compression	(150)	Satisfactory
Documentation	(75)	Very Good
Setup	(75)	Good
Ease of use	(150)	Excellent
Error handling	(175)	Very Good
Support		
Support policies	(75)	Excellent
Technical support	(75)	Very Good
Value	(100)	Good
Final score		7.3

PRODUCT SUMMARY

Company: AddStor Inc., 3905 Bohannon Drive, Menlo Park, CA 94025; (415) 688-0470; fax (415) 324-8849.

List Price: \$130.

Requires: Intel 8088 or compatible system; 512K of RAM; DOS 3.2 or later; hard drive.

Pros: Inexpensive; menu-driven; plethora of utilities; transportable floppies (read-only).

Cons: No coprocessor card version; compression could be tighter.

Summary: AddStor has marginally improved SuperStor's speed, but not its compression. This menu-driven program offers a fine group of utilities for an inexpensive price.

APPLICATIONS TESTS

INFO WORLD

Compression Software

(Test times in minutes:seconds)

Compression tests	SuperStor Version 2.0	SuperStor ¹ Version 1.3h	Stackcr ¹ Version 2.0	Baseline ²
Lotus 1-2-3 3.1	25:23	25:30	25:27	25:28
WordPerfect 5.1	01:25	01:25	01:26	01:20
dBase III Plus	32:30	33:01	35:38	27:02
dBase IV	12:10	12:09	11:29	11:57
Paradox 3.5	12:45	12:57	13:57	12:01

¹SuperStor 1.3h and Stackcr (software) 2.0 reviewed in product comparison February 17, page 57.

²Baseline represents test runs without date compression.

PixoFoto image editor runs past Windows competition

DOS-based program combines unique GUI with strong tools, robust prepress features

BY PATRICK MARSHALL

Windows has emerged as the dominant environment for PC illustration and image editing, and programs like Aldus PhotoStyler, Micrografx's Picture Publisher, and ZSoft's PhotoFinish have set the standard for feature-rich photo-realistic image processing. Unfortunately, these programs all suffer from relatively high program overhead, which results in slow speeds. PixoFoto 1.0 from PixoArts incorporates many of the tools and features of these programs with an added twist — it is a DOS program, making it both easy to use and fast.

Like the Windows programs, PixoFoto runs optimally on a 386 or 486, but you

won't need nearly as much RAM as Windows requires. In fact, you can get by with as little as 640K, though PixoArts recommends you have at least 6 megabytes to edit a 3-megabyte image at top speed.

Although PixoFoto has speed and memory advantages, because it is a DOS application you can't readily switch to another program like you can under Windows, and it is less likely that third-party utilities and drivers will be written that support the program. PixoArts has tried to remedy that problem by supplying a plethora of common drivers for video boards and scanners.

Although it has many of the image processing features and a Windows-like interface, over the long haul PixoFoto will have an uphill fight against the best of the Windows programs. But PixoFoto is easily the strongest DOS-based image-editing program and is definitely a superior choice for those who need the speed offered by DOS and don't mind working outside the Windows environment. Scores are based on the same criteria we used for the Picture Publisher review (March 30, page 75).

FEATURES:

Windows users will feel like they're on familiar ground with PixoFoto's interface. PixoArts incorporates Windows-like scroll bars and a title bar, and the buttons for expanding or iconizing windows are right where you'd expect to find them. PixoFoto even imitates Windows by having a few "tricks": Double-clicking in the upper left corner still closes an image, but by clicking once an information box appears and enables you to scroll through submenus without clicking.

The most obvious difference between PixoFoto's environment and Windows applications is that there is no menu bar across the top. Instead, the program relies on a floating toolbar and a floating menu box.

Indeed, PixoFoto's clean screen is perhaps just a bit too clean. The program lacks tool scratch pads, and there is no way to keep a palette on-screen for quick color selections. However, PixoFoto offers a strong set of editing and painting tools, as well as fine prepress capabilities that go well beyond simple the ability to create color separations.

Some of the program's shortcomings are addressed in an upcoming Version 1.1, which is due to ship in August. This includes a floating color palette, drivers for all popular VGA cards with 256 colors, Watcom tablet and additional scanner driver support, Alpha-channel editing, training video tape, and PixoFoto Lite (which will have 32K of memory, no color separations or Watcom support).

PERFORMANCE:

Anyone used to Windows image editors will appreciate the extra spurt of speed that PixoFoto is able to achieve without the burden of an operating system. Large images load quickly, and most operations, including screen redraws and filtering operations, appear snappy.



PixoFoto's filters have options to create textured surfaces, and the paintbrush controls enable you to modify brightness, opacity, and color shift.

Image editing tools/effects: PixoFoto's editing tools are very strong — almost matching the Windows heavyweights.

The program supports three color models — RGB, HSB, and CMYK — and PixoFoto's color map allows for global adjustments of overall color, as well as individual color channels. Adjusting images for brightness and contrast is also a snap, and you can specify whether the adjustment should be applied to the entire image or selectively applied using drawing tools.

PixoFoto's selection tools are competent though not overwhelming. They include rectangle, ellipse, and polyline tools, along with a freehand lasso and a magic wand. Selections can be added to, subtracted from, or inverted, but you cannot specify the intersection of selections or proportionally expand a selection.

The most serious limitation of PixoFoto's selection and masking tools is that you are unable to gradually merge selected pixels into their new background.

You can adjust the various color channels, brightness, and opacity when pasting a selection, but you cannot feather edges so that the pasted image blends into the background. That makes the program much more suitable for global corrections than radical cut-and-paste maneuvers.

A relatively modest selection of 12 photo filters is available, including filters for blurring and sharpening images, as well as special effects such as cylinderizing and mosaic. You can also create and save your own custom filters.

PixoFoto's prepress features are robust. You can generate CMYK color separations and recombine channels to check the effect of editing individual channels or to create special effects by combining only specified channels of two images. The program also provides control over dot shape, halftone angles, and screen frequency, and will perform undercolor removal to prevent overprinting during printing. We rate editing tools/effects good.

Paint/draw tools: PixoFoto provides superior control over painting tools. The brushes — which include a standard brush, airbrush, pencil, smudge, water drop, paint bucket, clone brush, and solid fill — can be adjusted for transparency and rate of flow as well as for size. In addition, like PhotoStyler and Image-Int Color, PixoFoto lets you set a brush to

replace only the hue, lighter colors, darker colors, and other qualities where you paint. You can also use PixoFoto's brushes to apply certain filter effects, such as sharpening or brightness adjustments. In fact, the only glaring weakness of PixoFoto's brush tools is that you can't adjust them to fade out as you continue a stroke.

Active foreground and background colors are displayed at the bottom of the tool bar, and you can see the full palette by clicking on those color swatches. The palette displays a spectrum bar for quick navigating, and pushing the spectrum bar's slider will change the color range in the palette's zoom box. You can also specify a color by entering number values using either the RGB, HSB, or CMYK modes. PixoFoto's "eraser" comes with 12 predefined erasers, and you're free to create and save your own. You can use the auto-blending feature to create a complete range of colors or select colors directly from the image using the program's eyedropper.

In addition to a text tool, PixoFoto rounds out its set of painting tools with two relatively unusual but useful items. Like PhotoStyler, PixoFoto enables you to erase the most recently saved pixels under the eraser instead of erasing to the background color, making corrections a snap even when it's too late for the Undo command. Secondly, PixoFoto offers a Bezier curve tool, which is relatively uncommon in bit-mapped image editors.

The lack of fade control, absence of tool scratch pads, and no support for pressure tablets are the only major flaws in PixoFoto's painting capabilities. We rate paint/draw tools very good.

Import/export: PixoFoto can import only TIF, PCX, TGA, GIF, RND (rendering file for AutoShade), SLD (AutoCAD slide file) formats and save in those and encapsulated PostScript (EPS) formats. Scanner support is also limited. Sharp, Umax, and Microtek scanners are supported, but the popular Epson 300C and the Hewlett-Packard IIc are not.

In addition, PixoFoto does not provide any utilities for calibration of your monitor, scanners, or printers. We rate import/export satisfactory.

DOCUMENTATION:

PixoFoto's documentation demonstrates a sense of easy style and thoughtful organization. The User Manual, Quick

REPORT CARD INFO WORLD

IMAGE EDITING SOFTWARE

PixoFoto

VERSION 1.0



Criterion	(Weighting)	Score
Performance		
Image editing tools/effects	(200)	Good
Paint/draw tools	(150)	Very Good
Import/export	(100)	Satisfactory
Documentation	(100)	Satisfactory
Ease of learning	(100)	Good
Ease of use	(150)	Satisfactory
Support		
Support policies	(50)	Satisfactory
Technical support	(50)	Satisfactory
Value	(100)	Good
Final score		8.8

PRODUCT SUMMARY

Company: PixoArts, 4600 Bohannon Drive, Suite 220, Menlo Park, CA 94025; (415) 323-6592.

List Price: \$895.

Requires: Intel 386 or compatible system; 640K of RAM (4 megabytes recommended); hard disk (10 megabytes free recommended); DOS 3.x or later; TIGA (34010, 34020, AT-VISTA); TIGA-compatible display; mouse.

Pros: Good speed, strong painting tools including Bezier curves, attractive interface.

Cons: Poor scanner support, limited file formats, spotty documentation, ease-of-use problems, high price.

Summary: PixoFoto is the strongest image editor in its class available for the DOS environment. This first release is a promising effort, though the program needs work, especially in making its color and brush adjustments easier to implement.

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Buyers Advisory / Brett Glass

SCSI cards are often more compatible than resellers let on



been told repeatedly that SCSI requires a dedicated SCSI card for each peripheral, except in the case when you can buy several peripherals from the same manufacturer.

If I switch from IDE (or whatever) to SCSI-2, how can I be sure I'll be able to add devices later without limiting myself to one peripheral vendor?

Dan Rice

At one time, there were indeed major problems with SCSI software on the IBM PC. Almost every peripheral came with its own host adapter — and software that supported “only” that host adapter and refused to share it with other peripherals.

Fortunately, help is on the way from two fronts. First, the adapter vendors are beginning to supply drivers. When you buy a SCSI card, it should come with drivers for hard disks and CD ROM drives at least.

In addition, standards have been developed to let peripherals share the same host adapter. The most popular one for the PC is the Advanced SCSI Programming Interface (ASPI); another, called Common Access Method (CAM), may soon become an ANSI standard.

If you insist on a card that has an ASPI Manager, you should be able to connect a wide assortment of SCSI peripherals to your PC.

The next question gives a specific example.

I use an IN2000 SCSI host adapter from CompuServe to interface two 210-megabyte hard disks to my 50-MHz 486 system. I have been wanting to include a CD ROM drive in my setup as well, and your recent writings suggest I can plug it into the SCSI interface I already have.

However, I cannot find a drive vendor who agrees with you. They all say, “Well, gee, I don’t know about that SCSI interface card; we have special drivers that we can only guarantee to work with our SCSI interface card.” How can I find a CD ROM drive that works with my system?

Bud Huber

As I mentioned in the response above, it’s all too common for peripheral vendors to try to persuade you to buy their own SCSI host adapter cards with a peripheral — even when you already have one. But never fear; the adapter you bought will work with any CD ROM drive if you install the right software.

CompuServe’s IN2000 card (as you’ve discovered on your own) is a private-label version of the Always IN2000,

made by Always Technology of Westlake Village, California ([818] 597-1400). Always generously posts the latest versions of the card’s software drivers on its technical support bulletin board system ([818] 597-0275). The CD ROM driver for the IN2000 is known to work with Sony, NEC, Toshiba, Texel, and Chinon drives — it may work with

others as well.

If you want to hook up SCSI peripherals for which Always doesn’t provide a driver, you’ll be glad to know that Always is now working on an ASPI Manager — software for the SCSI host adapter that will let you use SCSI devices and software drivers from many manufacturers.

A beta version of the ASPI Manager is also available on the BBS. Once the ASPI Manager is installed on your system, you can buy drivers from companies such as Corel Systems ([613] 728-8200) or Trantor Systems ([510] 770-1400) that support every brand of optical drive under the sun, as well as most other peripherals.

IN FOCUS

SCOTT MACE
Editor-at-Large

Profile: *InfoWorld* writer and editor for more than 11 years. Former Washington, D.C. bureau chief. Still based in Washington, but adept at working while on airplanes. Coordinates *InfoWorld*’s news coverage of client/server computing products, working closely with both software and networking editors. Covers database technology news, with emphasis on the emerging database server market.

Scott on *InfoWorld*’s mission: “Our mission is empowerment. The way to bring innovative IS solutions into the world is to empower users to prototype their own applications. That’s where client/server computing may hold its greatest promise. New technologies are bringing unprecedented levels of security, data integrity, and reliability to PC applications. Our job is to communicate such developments as clearly and quickly as possible: to empower our readers to use the tools available and create their own solutions.”

On the importance of credibility: “Without credibility you’re nothing. Too often, technology journalists are at the mercy of vendors’ claims, which puts us in the same boat as buyers and users. Our job is to sift through the hype and the hidden agendas—to be the industry’s truth serum. *InfoWorld*’s readers expect nothing less.”

On covering the industry for over a decade: “In the early days, covering the PC industry was a lot of fun. It still is, but it’s more challenging than ever before. Even now, I think we’ve only just begun to realize the potential of personal computing. I can’t wait to see what the vendors—and the users, our readers—come up with next.”



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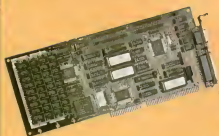
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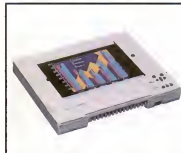


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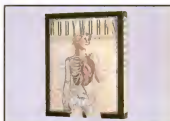
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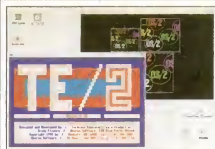
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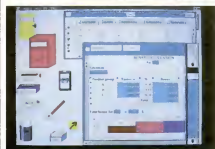


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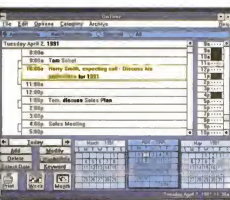
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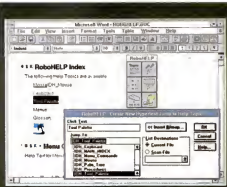
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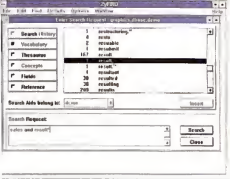
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DEC / from page 1

DEC rushes its high-end, Alpha-based PC as market heats up

head of DEC's Alpha Program. The Alpha PC will be identical to a 486 or P5 system — using standard SIMMs, for example — except for its chip, he said.

"With six EISA slots and 120 to 256 megabytes of memory, it sounds like it's geared toward being a server to PCs, which would be really a nice offering for Windows NT and allow DEC to get into the Windows installed base," said Laura Scervall, an analyst with Dataquest, in San Jose, California.

However, analysts were skeptical that DEC could deliver on its promise to ship the Alpha PC at a low cost so soon.

"We're very suspicious if they can ship a large quantity and under \$10,000 with any software [by early 1993]," said George Weiss, an analyst at the Gartner Group, in Stamford, Connecticut.

The company may have decided to pursue Alpha more

aggressively back in April, when DEC tried to drop its plans to port OS/2 to the MIPS R4000 processor, supposedly because Alpha development was going along better than expected.

But a changing market could also have forced DEC to step up its schedule.

"DEC is in a logjam that they may need to ship Alpha to break," said Ken Lowe, an analyst with Dataquest. "They created such excitement when they announced Alpha that customers are saying they're going to wait to buy one of those."

Just as serious is the threat from Intel's P5 chip. "The combination of NT and the P5 is very serious competition to low-end workstations and servers," Scervall said.

"Intel has strengthened itself considerably," Weiss said. "We're pretty convinced now that RISC is not going to have a major impact on generic PCs."



Members of DEC's Alpha and NT teams (left to right) Michel Gambier, Robert Supnik, and Ben Schreiber, and Microsoft's Dave Cutler show off a prototype Alpha PC board at the Windows NT developers' conference.

"[DEC has] got to make Alpha successful with full scalability to be a major force in the market," Scervall said.

Alpha's showing in the PC and workstation markets will

determine DEC's ability to make the transition from proprietary minicomputer vendor to what Supnik called "a fiercely competitive provider of distributed computing systems."

Interim update patches bugs plaguing CorelDraw

BY JEANETTE BORZO

Corel Systems Corp. is shipping a slipstream version of its CorelDraw 3.0, offering users new functionality and fixes to a variety of problems users have reported.

Ottawa-based Corel is encouraging early users of the latest version of CorelDraw to call for a free revised copy.

"We've swiftly responded to irregularities that have been pointed out," said Fiona Rochester, Corel media relations manager. "In addition we have added functionality, including the Kodak Photo CD format. Users can call customer service (800) 836-Draw3," she added.

Corel released Version 3.0 of the popular Windows-based

drawing package at the end of May. (See "CorelDraw 3.0 diversifies; modules added, price cut," May 11, page 1.)

Although users appreciate the program's new functionality and features, the admiration is tinged with a heavy dose of frustration at program bugs and slow response from Corel technical support.

"They added so much to the program but I took it off my system," said one CAD consultant. He was one of several users who reported program bombs when using Corel with an Ultra graphics accelerator card from ATI.

"That is ironic, given that Corel offered [the Ultra card] as a prize in their CorelDraw World Design Contest," com-

mented another user.

"[The problem] was discovered after the release of the product," Rochester said. The problem is fixed in the new build, she added.

One long-time user called the program a wonderful piece of software, but added, "The one they shipped was junk. It feels to me as if Corel's decisions were made by marketing and not engineering."

"That's definitely false," Rochester said. "It had been fully tested and was considered fully functional. The engineering team was very pleased with the status of the build."

One user complained of calling technical support, on a Friday to get help with CorelDraw 3.0 and not hearing back by the

following Wednesday.

"I get their voice mail and I don't hear back," said another user. "I fax them and I don't hear back."

"They probably weren't home when [the return] call was placed," Rochester said. Problems not immediately addressed by technical support are addressed in the update, she added.

Corel last week increased its weekday technical support hours from 5 a.m. to 9 p.m. Eastern time. "It was in response to the fact that our customers work odd hours," Rochester said, rather than to deal with a deluge of new calls. By next month, technical support will be increased to 24 hours a day, Monday through Friday.

Software firms establish programs to weed out piracy

BY JEANETTE BORZO

Industry reaction appears divided over software company tactics to catch software pirates, as a trend to establish vendor anti-piracy programs gathers steam.

At least four software companies have established programs, and sources said others are moving to beef up their efforts.

Some in the industry object to a monetary reward being given to software resellers who identify offenders. The reward — offered under programs established by Autodesk Inc., Aldus Corp., and Adobe Systems Inc. — comes in the form of a 20 to 30 percent commission on the settlement received from a soft-

ware pirate.

"In most cases, we ask [the offenders] to purchase the software and we will pay a commission to the reseller," said Aldus public relations manager Brad Stevens. Seattle-based Aldus launched its program — based on Autodesk's program — in April last year.

"If [software companies] are going to get resellers to go after customers, that is a major mistake," responded one software user.

"It sounds like of Nazi Germany," said another user. "Turn in your brother and get paid."

"If you had a car dealership and you had people driving your

cars off the lot, no one would blink an eye about a reseller taking action," countered Sandra Boulton, director of the anti-piracy department at Sausalito, California-based Autodesk.

"It's not like we're going in and trying to be Big Brother. We just want to get paid for the software we produce," Boulton said.

Autodesk, which established its program in 1988, said it has received settlements of more than \$8 million and has compensated resellers with more than \$1.5 million.

"Our point in the 20 percent commission to dealers was to reward them for their efforts and time, not to create bounty hunters," said Steve Peters, corporate counsel for Mountain View, California-based Adobe. "Both resellers and publishers lose with piracy," Peters said.

Adobe began its program less than six months ago.

While a source at one software company called the programs to reward resellers "hostile," other sources said there is a trend for companies to develop their own anti-piracy programs.

"I think there is a trend as more software companies realize how much they are losing through piracy," Boulton said. "I've spoken to other companies interested in [setting up programs]."

ROUTER / from page 1

Novell to ship enhanced router

Datagram Delivery Protocol, and XNS.

It will also add a number of wide area communications interfaces to its networking product line, including Frame Relay, Async (RS-232), T-3 (45 megabits per second), ISDN, Broadband ISDN, Switched Multimegabit Data Service, and Asynchronous Transfer Mode. Current WAN products include NetWare Link/64 and Link/T1.

Novell will also introduce its own routing protocol, called the NetWare Link Service Protocol, and incorporate a number of standard router protocols in the MPR, including Open Shortest Path First, Point-to-Point protocol, OSI Intermediate System to Intermediate System (IS-IS), and AppleTalk Update Routing Protocol.

API / from page 1

Task force set to unveil APIs

nounce this week IBM, Hewlett-Packard Co., and Digital Equipment Corp. as additional members.

The group was formed last May to develop a more efficient and powerful method for integrating desktop information into existing network management systems.

The draft API will, in effect, create a single agent for PC management, eliminating the need for individual agents for each management protocol, said Chris Thomas, manager of core technology for Intel's network unit, in Folsom, Utah.

This approach will be particularly valuable for DOS desktops because of their limited access to memory, he added.

Desktop agents built to conform to the API will be able to monitor hardware configuration, including add-in cards and other desktop peripherals, as well as provide performance analysis, application monitoring, and security, Thomas said.

Once gathered, the desktop data is communicated from the PC to any LAN or enterprise network management system — including Sun Microsystems' SunNetManager, HP's OpenView, IBM NetView, and Novell's NetWare Management System.

"We don't care about how the request for data is issued," Thomas said. "The Simple Network Management Protocol is the right choice for the working model, but Intel will come out with its own implementation, which is not based on SNMP."

The API specifications will be distributed free to any interested party.

REVIEWS / TEST DRIVES

FIRST LOOK / from page 1

Microsoft makes its move with Windows NT SDK

in part because developers already know (and have produced thousands of packages with) the Windows applied programming interface (API) that's been ever so slightly extended in the Win32 API.

More important, a sizable portion of the 10-million-license Windows market will respond to a higher level of functionality presented via the familiar Windows interface. There's no question: Developers will tap the extra power because they think it will be lucrative.

A porting tool that helps move the existing C source code of Windows 3.1 applications over to Win32 and NT is included in the SDK. If developers heed the warnings, their applications will run in full 32-bit mode on all the processors NT supports, including Intel x86, Digital's hot Alpha chip, and the MIPS R4000.

Fortunately, moving an application from the Windows API to the Win32 API doesn't take genius. Developers who have visited Microsoft's porting lab have taken anywhere from a few days to a few weeks to change existing Windows 3.1 applications to 32-bit NT code.

No, the real genius will lie in what inspired developers to work with stretches of unsequenced memory; multiple threads to carry on tasks in parallel, pre-emptive multitasking to allow

depend on how far below \$500 Microsoft goes when it releases Windows NT near the end of this year.

But the improvements are significant. Take security. All told, Microsoft promises a C2 rating that will make even government buyers happy (as will the ability to run Posix applications). The clever use of Ctrl-Alt-Del as the log-in/log-out sequence eliminates the possibility of someone writing an application that mimics the log-on screen in order to capture an unsuspecting user's password.

And if you choose to go with the full Microsoft network solution? The separate LAN Manager for Windows NT will allow integrated management of multiple network domains, support fault tolerance through disk mirroring and Redundant Array of Inexpensive Disks (RAID), and even allow users to work with the same desktop arrangement no matter what workstation they log on from.

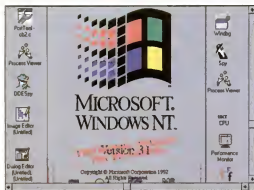
The RAID5 support is notable, by the way, for working with any Windows NT-compatible SCSI drive without need for a special (read expensive) controller.

The improved data throughput from disk stripping and the error correction that lets a RAID5 machine continue to operate with only four of five disks functioning is achieved entirely in software.

Data integrity is improved as well. If you install NT's file system over file allocation table or High Performance File System, every change in file structure is logged. In the event of file damage, the operating system simply switches to the previous version.

The familiar Windows applets? They are still less than earthshaking, but they have been improved. For example, the file manager includes a toolbar for changing sorting order and other aspects of display.

New applets let you assign user rights and permissions via a nice drag-and-drop interface, or monitor as many operating system performance parameters as a Unix guru.



The Windows NT SDK includes a full palette of tools for developing and debugging 32-bit applications.

heavy-duty background processing while the machine remains responsive to the user; improved drawing primitives; and the main-frame-level performance possible on a multiprocessor Intel or RISC machine running NT services such as SQL Server or Oracle 7.0.

ENTERPRISE COMPUTING. Windows NT also adds a remote procedure call (RPC) facility that will let anyone who can write a structured program write distributed applications. There's no real difference between calling a local subroutine and calling any arbitrary routine running on any machine on the network.

In other words, client/server development will no longer be limited to SQL databases and front ends.

And because the Windows NT RPC is compatible with the Distributed Computing Environment (DCE) standard, the remote service could be a Digital, Sun, Hewlett-Packard, or IBM machine.

I think Windows NT will do for enterprise-wide distributed applications what the Macintosh did for GUI applications.

WHAT'S IN IT FOR USERS? Even before a new generation of superior applications emerges, users will like NT's improvements over Windows 3.1—although their enthusiasm over being able to edit a document while they format a floppy disk will

LEGACY APPLICATIONS. Thus far, Microsoft has focused on what NT needs to succeed: a lot of 32-bit application development. Although most of the foundation for running DOS, Windows 3.1, and 16-bit OS/2 character applications is in place, including the ability to load all of the above from a common prompt, it is not solid.

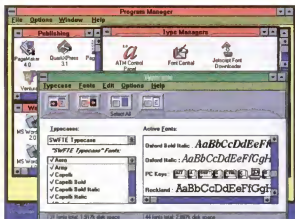
But Microsoft believes the NT version of SQL Server will be the real ticket. Like Oracle 7.0, the next release of Microsoft's database server will be able to split processing evenly among as many processors as you care to throw into the box. In other words, with NT, the Windows environment becomes scalable.

And that's where Windows NT really shines. With future versions of Windows running on diskless palmtops, and NT scaling up to main-frame-size processing power, Microsoft has recreated (even outdone) the key element of Digital's Equipment Corp.'s success. NT is Microsoft's VMS: a single operating system designed to interconnect all size computers into a unified system.

I think Windows NT guarantees Microsoft's dominance of computing until the end of the century. Heaven help us.

Kevin Strehio is InfoWorld's Editorial Director, Testing & Reviews. First Look examines new products before they have been through a formal review.

TRUETYPE FONT PACKAGE



With Typecase, you can create your own collection of typefaces or select from the variety of scalable fonts available.

TrueType package offers superb variety of fonts

Package is inexpensive, but sleek

By GALEN GRUMAN

At first I thought, "Oh, not another set of ripped-off typefaces!" But the collection of scalable TrueType typefaces from 52 type families in SWFTE International's Typecase is not just another set of cloned fonts. True, most of the fonts are clones of standards like Souvenir, New Baskerville, American Typewriter, and Bodoni.

But some are clones of elegant but less-than-usual sus-

the ability to compress fonts that have been deactivated.

The only trouble I had was when I tried to install more fonts than I had room for. Typecase eventually gave me a General Protection Fault (the old Unrecoverable Application Error renamed for Windows 3.1) after first trying to copy fonts after running out of disk space and then trying to decompress those it had copied. It should not have installed anything my hard disk it didn't have room for.

At \$99.95, Typecase is a great bargain for people looking to start a basic typeface library. It stands out from the others in the sea of font knockoffs.

pects, like Garamond Condensed, Janson Text, and Caslon 54. There's even an original: PC Keys, which is a set of keyboard and other computer symbols that documentation publishers should love. It was a pleasure to see how well crafted the typefaces were; they printed cleanly on a 300-dot-per-inch PostScript printer.

But Typecase goes beyond just providing typefaces. It lets you create typefaces, or collections, of typefaces that you can switch among to preserve design standards or simply keep the font list in your Windows applications manageable. Another handy feature is

because it tracks the amount of available space while installing.

At \$99.95, Typecase is a great bargain for people looking to start a basic typeface library. Although high-end publishers will likely buy the original Adobe Type 1 typefaces (for use at service bureaus), those relying on laser printers (whether PostScript or PCL) for their output will find Typecase a welcome package that stands out from the many others in the sea of font knockoffs.

SWFTE International, 724 Yorklyn Road, Hockessin, DE 19707; (302) 234-1740, fax: (302) 234-1760.

PROBLEM SOLVING APPLICATION

Idegen++ helps PC users spark creative thinking

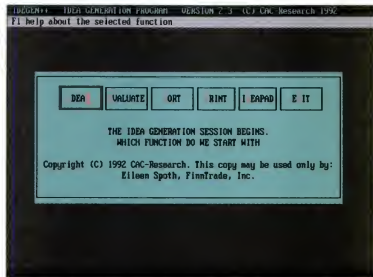
By KAREN A. BROPHY

Information processing is the business of computers, but there are few expectations that computers will be able to solve all our problems. FinnTrade Inc.'s Idegen++ provides computers with a method to help solve a range of problems — from creating a marketing campaign to solving an internal dispute.

Idegen++, a DOS-based application, helps problem solvers illuminate possible solutions and analyze the best approach.

The structure of Idegen++, a metaphor for our thought processes, focuses on the power of association. One level of the program displays words that encourage you to look at a problem through a different lens. The words don't relate to the problem at hand; they are randomly generated. They are present to spark your creativity.

You could use the program alone or with a group of people to brainstorm and evaluate workable solutions. The program is fairly easy to use. I wasn't prepared to be prodded for ideas by my computer, but I found the exercise extremely helpful. Not only does it help you solve problems, it teaches you



Idegen++ offers a way to accumulate, evaluate, and organize your thoughts. In the IdeaPad, you can record any spontaneous ideas.

methods for finding creative solutions.

Idegen++ is composed of several sections, each a step in the problem-solving process. At first, you use the Ideas mod-

ule to state your problem and generate some possible solutions. There are three levels to this module. General Principles leads you through some tenets of prob-

lem solving and asks you to apply them to your question. It is a great place to focus on your problem, determine who needs to be involved in the process of solving it, and define your goals.

You can then use the Modification Checklist, which instructs you to try several new ways of approaching the problem. Next, you use the Distant Models section to work on alternative solutions. It is this section that generates a range of words to facilitate your creative processes.

Once you have accumulated enough ideas, you can use the program to evaluate the various options and define your solution. You can pick out the workable solutions and then sort and print them for presentation.

Idegen++ also provides a place to store spontaneous ideas, perhaps not related to the current question.

This application is a great way to enhance your approach to problem solving. It genuinely facilitates the creative approach necessary to succeed in a competitive world. No business should go without it.

Idegen++ lists for \$495.

FinnTrade, 2000 Powell St., Suite 1200, Emeryville, CA 94608; (510) 547-2281; fax: (510) 653-4784.

WINDOWS UTILITY

Synergy utilities create sharp desktops for Windows and automate your work

By JANICE PETRELEY

SynApps Software Inc. has created a gem of a Windows utility package. Synergy comes with a wealth of useful tools: a toolbar editor, a script language, a custom designer, a file finder, visual effects, a sound manager, and more.

SynApps Script Language (SSL), Synergy's macro language, is quite powerful and flexible. It is practically a programming language. You won't have to memorize the language syntax to use it; you can set the script editor to watch what you are typing and display the syntax as soon as it recognizes the command. Between the quick-reference lists, the numerous examples, and the integrated debugger, even complex scripts are easy to pull together.



Synergy's Launcher utility runs any program or script at a predetermined time.

The toolbar editor, Eclipse, is one truly clever utility. You can create a custom toolbar for the desktop or for any existing Windows application. This is no wimpy kit for speeding up cut-and-paste functions. The toolbars you create use the SSL, so there is not much limit to the kind of custom functions you can put on a toolbar.

Psychic, another tricky utility, "watches" which files you use most frequently, and then "predicts" your next choice when you open a new file. I had a problem with it crashing while running Norton Desktop 2.0, though. According to SynApps, this problem has been fixed in the version now shipping.

The FX utility is a real kick. It adds special effects to your Windows environment, like Macintosh-style exploding windows and custom shadows. You can also use FX to associate wave file sounds to just about any Windows event, even if you don't have a sound card.

Other programs include the File Fetch file finder, an icon editor that does a few tricks most others can't, a utility to take screen snapshots and edit them, and a Launcher for running programs or scripts at predetermined times.

For \$129.95, Synergy provides some excellent tools for Windows users to create a more intuitive and productive environment.

SynApps Software Inc., 2009 178th Ave. N.E., Redmond, WA 98052; (206) 562-3015.

3-D MOUSE

Z Mouse gives CAD designers 3-D control

By RALPH GRABOWSKI

As designers take advantage of the powerful three-dimensional drafting capabilities of today's CAD systems, they are still stymied by the computer's two-dimensional interface. The primary input devices — the digitizing tablet and the mouse — operate in 2-D. The primary output devices — the monitor, the printer, and the plotter — operate in 2-D as well. The designer spends a lot of energy just translating between 3-D thinking and 2-D interfaces.

There are some 3-D input and output devices — sonic digitizers, polaroid monitors, and stereolithography come to mind. But now Multipoint Technology Corp. has a reasonably priced 3-D mouse that works with CAD software on PCs, Macs, and some Unix workstations.

The Z Mouse is a three-button mouse, with a mouse ball underneath, a trackball on top, and a thumbwheel on the side. The design allows six degrees of freedom, letting the CAD user zoom, pan, and rotate views — without typing the relevant commands.

I tried the Z Mouse with AutoCAD, which uses an Autodesk Device Interface (ADI) driver. At first, I felt somewhat out of control. As I moved the mouse and its trackball, the AutoCAD views zipped and skidded around. After a few minutes of practice,



Z Mouse lets CAD users zoom, pan, and rotate views.

though, I could manipulate the 3-D views to my satisfaction. The controls felt naturally placed.

The 3-D mouse can help in real-time animations. When hooked up to a program similar to a flight simulator, the mouse controls your "body" movement as you travel through the scenery, while the trackball controls your "head" movement as you look around. The thumbwheel controls the view height of your eye above the ground. That means you can look around as you walk through a computer-generated 3-D model — sort of a poor man's cyberspace.

The Z Mouse is important for Windows users, too. According to Multipoint, it would be possible to adapt the z-axis to control pages in a 3-D spreadsheet, or even move between applications on the Windows desktop. Multipoint has Z Mouse drivers for DOS, Windows, AutoCAD, Macintosh, and Silicon Graphics systems, as well as a developer's toolkit.

The Z Mouse retails for \$250.

Multipoint Technology, 319 Littleton Road, Suite 201, Westford, MA 01886; (508) 692-0689; fax: (508) 692-2653.

Intel: Speed up the chips, slow down the clones

Until recently, whenever an IBM-compatible 386 PC was sold, money went directly into Intel's deep pockets. That monopoly ended last year, however, when AMD brought out its 386 clone. Intel's answer to competition from clones is to first haul them to court and then cut prices — and then juice up the x86 chips. David House, senior vice president for corporate strategy preannounced the 586 — code-named P5 — at last year's PC Expo, saying that it will use superscalar design and hold more than 3 million transistors.

But the P5 is still more promise than reality, and Intel has had to deal with competition from 386 clones and soon 486 clones, as well. Dallas Bureau Chief David Coursey asked House about Intel's strategy of pumping up the X86 line to fend off both clones and RISC alternatives to the Intel standard.

Coursey: What do users need to understand about Intel?

House: We're really focused on the fact that the technology is moving so rapidly. That requires continually educating the users on issues like, "What's 486 vs. 386?" and "What about the OverDrive upgrade processor?"

Coursey: Some of this, like the add-on processor of the 486, is really confusing.

House: Oh yes, the market is getting very confused. And it will get more confused. We've ramped up development and increased our rate of new product introductions. Now we've also got a bunch of people — with or without our microcode — doing imitations of our products. It used to be it was real nice and clear what a

386 was and what a 486 was. Now we've got these 386-and-a-halfs, or are they 386-point-1? Or point five? What are they?

Coursey: Will there be a "686"?

House: There probably won't even be a 586. Although we haven't named the P5 yet, we probably won't call it a 586 because of the confusion that exists around the X86 names. A judge decided AMD can call its product a 386, so I assume the same thing would apply to the 486, 586, or 686.

Coursey: How could you know enough about what Cyrix is doing to sue them over their new processor before the chip is really out the door?

House: You have to ask the lawyers that question. . . . The answer is we're pretty confident they violated our patents.

Coursey: I don't think anyone begrudges you your intellectual property rights. But in a growing market, does litigation end up taking your eye off the ball?

House: Your issue isn't with me, it's with the Congress. The laws of this country provide a limited monopoly to an inventor for a limited period of time on his invention. The only thing we're asking is that if that's the law of the land that it be enforced consistently.

Management is not diverted by this, however. As managers we have to assume that the legal system doesn't work, which so far has been pretty correct, and we have to win by competitive means.

Coursey: There are always rumors of Intel cutting deals with this vendor or that



vendor to keep a company alive or using Intel processors. Anything to that?

House: We're intentionally competitive and will fight to the death to win every ounce of business. We are not big and fat and lazy, and we will do everything — within the law — to win 100 percent of the business.

Coursey: In one day, Intel's \$1,000 math coprocessor chip was cut in price by

something like two-thirds. Now Intel math chips sell for less than half of what they used to. And that's happened because companies like Cyrix cloned the chips. The impression I still have is that Intel kept prices artificially high. . . .

House: The revenue on our today's products has to pay for development tomorrow. We're spending about \$2 billion this year on new products and new technologies. But competition certainly plays a role in the pricing process — I'm not going to deny that.

Coursey: This gets down to a perception that Intel believes that anyone who clones their products must have done so illegally. And then some users see a big bad Intel trying to sue smaller companies into bankruptcy, which for Intel becomes a competitive strategy.

House: Our patents are complete enough and solid enough that if you produce a product that is fully compatible you're going to violate our patents.

Coursey: As simple as that?

House: There are aspects of our architecture which we do not believe — and the courts will wind up deciding — there is any way to be compatible with and not violate those patents. Our competition may say that some of the claims in those patents may or may not be valid and they may or may not prevail.

Coursey: So this isn't just the big guy beating up on the little guy?

House: Absolutely. It's natural to assume the big guy is bad, but it's not always true.

Notes From The Field / Robert X. Cringle

The R5000 chip won't be MIPS' baby, nor will it be Murphy Brown's

Thank God for Dan Quayle. With my life more than half over, I had pretty much concluded that my dream of being a member of an elite group would never be realized. I had tried to join the athletic elite, the intellectual elite, the social elite, and the financial elite, but was too weak, too dumb, too dorky, and too poor. The closest I've come to elitism is working at *InfoWorld*, but even that's shaky; Alsop, my editor, keeps changing the locks.

Then along came Quayle, inventing what he called the *cultural elite*, which doesn't require intelligence or strength or wealth or being a good dancer to join. All you have to do is read, listen to music, watch TV, and go to movies.

I can handle that.

MIPED IN THE RUB. But you can't read just anything to join the cultural elite. *Guns & Ammo*, doesn't qualify. *The New Yorker* does.

This qualification thing is tricky. You would think that MIPS Computer would qualify to design the next offering in its VLSI processor line, but that's not the way it works.

MIPS went to its semiconductor partners awhile back, asking for \$60 million



to design the R5000. But the partners, including NEC and Toshiba, decided instead to build an alternative R5000 already designed by Quantum Effect Devices, the new home of Tom Reardon, who used to be the main architect at MIPS. Not only was the QED design already finished, it cost only \$10 million.

MIPS stoically accepted the QED design, which is slated to appear next May (don't hold your breath) in versions for workstations, PCs, and laptops. The 75-MHz chip is melting its way out of laptop cases even as we speak. Running at 3.3

volts, it's also a chip that is unlikely to be built outside of Japan, because MIPS' U.S. semiconductor partners can't handle the technology.

So the big question is what did Silicon Graphics actually get for the \$200 million it spent last year to buy MIPS?

CULTURE CLASH. While the Japanese win one with the R5000, they lose one with Windows 3.1, which is seriously delayed in its Japanese version.

The clamor from Japanese hardware vendors who were promised Win3.1 code by now has been so loud that Bill Gates headed to Tokyo right after his keynote address at the Windows NT conference last week in San Francisco. Despite Chairman Bill's diplomacy, it looks like NT will arrive in Japan before 3.1.

And Windows NT can arrive at your house even sooner. Just log onto the WIN32 forum on CompuServe and order the Win32 SDK for \$69. The SDK includes a beta version of NT and doesn't even require signing a nondisclosure. You can get a LAN Man NT beta, too. This kind of gutsy beta program is just part of Redmond's effort to kill OS/2 and ensure that Unix remains a niche OS.

Oh, and if you don't like the cheesy

box your Windows 3.1 upgrade came in, call Microsoft and they'll ship you the four-color box for free. Tell them Bob sent you. They'll like that.

UNPARALLELED. Being a member of the cultural elite doesn't make me powerful, despite what Danny says. My fashion sense, for example, has had no effect at all on America.

Like one of those new Bernoulli drives with the "fixed" SCSI recognition protocol that now won't work with Trantor's SCSI-to-parallel converters, I don't feel very effective.

Pammy, on the other hand, is angry. "So Quayle's family is worth \$600 million, he majored in golf, his wife is a lawyer who writes bad novels, and I'm a member of the cultural elite!" Pammy asked, getting a little steamed up.

"You read *Cosmo*, watch MTV, and gave \$10 last year to the National Organization for Women," I countered.

"But I'm a member of the NRA."

"Oh, well that's different."

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